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The Improvement of Reading

A PROGRAM OF DIAGNOSTIC &
REMEDIAL METHODS *Third Edition*

1947

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Preface

THIS is the third edition of this book which was first published in 1927. It is based on the results of continued study of the problems of improving reading since that time.

This book is primarily a manual of directions for diagnosing and remedying reading defects. It is based on the theory that intimate knowledge of the strengths and limitations of the pupil, of the nature of the reading process, and of the most fruitful methods of instruction are essential bases of securing the greatest reading abilities both in remedial work and in classroom teaching. The volume should be serviceable to reading specialists and to classroom teachers.

This book describes the writer's series of reading achievement and diagnostic tests, all of which are either new or completely revised since 1940. The series includes the *Gates Reading Readiness Tests*, revised in 1941; the *Gates Primary Reading Test*, revised in 1942; the *Gates Advanced Primary Reading Tests*, first published in 1942; the *Gates Basic Reading Tests*, revised in 1942;

the *Gates Reading Survey*, revised in 1942; and the *Gates Reading Diagnostic Tests*, revised in 1945. These tests were developed to provide a systematic and coordinated program of testing and appraisal from the prereading stage to the upper grades. This book is, in part, a manual for using these tests in a comprehensive program for the first six grades.

The *Diagnostic Tests* were revised tentatively in 1938 and variously modified in the light of experiences with them since that time. The new outfit is, it is believed, more comprehensive, yet easier to administer and interpret than earlier ones. Some of the tests formerly included, such as tests of auditory discrimination, memory span, visual perception, and so on, have been discarded because other more reliable devices, such as group audiometers, screening tests of vision, and others are now available. The new series of diagnostic tests can be given to a child in much less time—from a half hour to an hour and a half, depending on the child's reactions.

This book makes no pretense at covering the entire literature of the field of teaching reading. It is essentially a practical manual. The author's main purpose has been that of helping the teacher and reading specialist to gain insight and skill in improving reading. Nothing, however, could be further from the writer's purpose than to produce a treatise confined to directions for using practice materials, gadgets, and remedial exercises without an understanding of the nature of reading and of pupils' individual needs. The author, in fact, heartily deplores the practice of turning out "reading specialists" whose learning has been confined largely to training in using a few diagnostic and remedial gadgets and devices. In this edition more space has been devoted to discussions of reading activities, especially of various forms of comprehension, than in either of the preceding editions.

In writing this revision, the author has placed foremost the effort to write a clear and comprehensive account of the processes involved in good reading, what goes on when one reads well or poorly, and what changes instruction and guidance may produce. The teacher or remedial worker taught merely to use a bag of tricks is at a loss when her devices fail her, as they most assuredly often will. Only

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the worker who has learned to achieve real insight into the pupils' activities and difficulties can be expected to be of maximum help to the almost numberless types of reading problems that will be met.

To the person who reads this book straight through there may seem to be considerable repetition of certain points. These are deliberately provided for those using the volume as a text. The author has found that in teaching the subject to produce a comprehensive understanding of the reading process certain characteristics must be pointed out in several different contexts.

Various types of information, such as extensive bibliographies, lists of texts, practice materials, diagnostic devices, books, and others, contained in the preceding editions have been omitted because they are now available in several other recent publications, and to include them would make this book unduly long.

The author is deeply indebted to the host of persons who have assisted him at some time in some way in developing the material contained in this volume. To Dr. Margaret McKim for her help in revising the diagnostic tests; to Miss Rosalind Blum for her suggestions for improving the tests and the use of some of her case studies in Chap. XVII, to Miss Muriel Potter, for her critical reading of the manuscript and proof and preparation of the Index; and to Mrs. Florine Blanco, for her expert stenographic service, the writer is especially grateful.

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The Improvement of Reading

chapter 1 General Characteristics and Causes of Reading Difficulties

Reading is both the most important and the most troublesome subject in the elementary-school curriculum. It is most important since it is a tool the mastery of which is essential to the learning of nearly every other school subject. It is most troublesome since pupils fail in reading far more frequently than in any other elementary skill.

The Importance of Good Reading Ability

The importance of reading is indicated in many ways. That teachers and school officers recognize its significance is indicated by the relatively large time allotment assigned to this subject in the elementary school and the wealth of teaching devices originated in relation to it. That those engaged in research realize the importance of reading as a school subject is apparent in the relatively large number of investigations in this field that have been made during

the last four decades. Both school experience and scientific research have added new evidence of the prime importance of good reading in schoolwork. That spelling is partly dependent upon effective reading, that good methods of study in geography, history, and other subjects are largely due to correct types of reading techniques, that difficulties in working arithmetic problems frequently result from faulty reading habits—these are admitted facts and are examples of an increasing number of findings that emphasize the value of establishing good reading habits. For the reasons indicated, parents and school executives alike expect the teacher to develop in the pupils with promptness and efficiency the reading skills desirable at each stage of advancement.

Frequency of Failure in Reading

Despite the quantity of experimental data, the wealth of ingenious teaching devices, the range of interesting children's reading material, and the large amount of school time available for teaching reading, a surprisingly large number of pupils still experience difficulty in acquiring satisfactory reading skills. In one study of this type,¹ it was found that in 1926 reading was "the most frequent cause of school failure." Failures in the primary grades were then almost wholly due to deficiencies in reading. According to this study, in Grade 1, 99.15 per cent of the pupils failing of promotion were marked as "failures in reading"; in Grade 2, the percentage was approximately 90; in Grade 3, approximately 70. Although it is not now universally agreed in school circles that pupils should not be promoted from the primary grades until they can read intelligently, the problem of dealing with retarded readers, even those of superior intelligence, is a serious one. No other subject presents such serious difficulties to the primary teacher.

Instruction in reading does not cease with the primary grades and difficulties in teaching are not confined to the lower levels. A pupil in Grades 1 and 2 does not learn to read in a final form and for all

¹ Percival, Walter P., *A Study of the Causes and Subjects of School Failure*, unpublished doctor's dissertation, Teachers College, Columbia University, New York, 1926.

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purposes. There are numerous reading skills to be mastered at higher grade levels. When the lower level techniques have been inadequately or imperfectly mastered, the acquisition of the higher level abilities becomes difficult. But even pupils who have made normal progress through the primary grades are not always able to avoid difficulty in mastering the subtler skills required for the more complex reading demands of the higher grades. That reading is a subject never fully mastered at any one point in the school course and that it affords plenty of difficulties above the second grade is indicated by the results of the study referred to earlier. Of the pupils failing of promotion in the several grades, the percentages failing in reading were approximately as follows: Grade 3, 68; Grade 4, 56; Grade 5, 40; Grade 6, 33; and Grades 7 and 8, 25. It may safely be assumed that many of these pupils had difficulty in other subjects primarily because of deficiencies in reading skill. Indeed a careful study¹ shows that pupils in the fourth or higher grades whose reading attainments fall below the reading norms for the fourth grade are almost always markedly handicapped in their work in the other subjects.

Causes of Failure or of Difficulty in Reading

Why—we are driven to ask—are defects and deficiencies in reading so numerous? Why should a subject so important and so much studied be so difficult to teach and learn? Why do we find so many pupils, some of superior intelligence in the very best schools and under exceptionally able teachers, failing to learn to read satisfactorily?

Aside from the many causes of reading deficiency to be found in individual cases—such causes as low mentality, scholastic immaturity, defective vision—there is one significant cause, which, when it is recognized, makes evident the reasons for difficulty in teaching and learning to read. This is that reading comprises highly complex abilities, that are not easily detected and observed.

¹ Lee, Dorris M., *The Importance of Reading for Achieving in Grades Four, Five, and Six*, Teachers College Contribution to Education No. 556. Teachers College, Columbia University, New York, 1933.

Reading a very subtle and obscure activity. In the proficient reader, the skill seems utterly simple; the darting eye takes in the words with such facility and with so little obvious effort that one unfamiliar with the processes would be inclined to think that reading was a far simpler activity than typewriting, sewing, or dancing. This, however, is certainly not the case. The fluency and ease of proficient reading is evidence not of its simplicity and ease of acquisition, but of the great skill acquired by dint of practice. Words seem to pour from the lips of an expert oral reader as freely as movement follows the action of the engine of an automobile. As in the automobile, the result is dependent upon the cooperative action of a number of very complex mechanisms. Indeed, the machinery upon which efficient reading depends is far more complex and the coordinations are vastly more subtle than those that characterize the elaborate car. And just as in the automobile various defects in one mechanism or function, various types of improper adjustment, various deviations in coordination, may singly disturb the operation of the whole machine or stop it altogether, so in reading various single defects and deficiencies may produce an inadequate performance or inhibit the function entirely. If an automobile fails to work or operates badly, we at once investigate its parts and adjustments. Difficulties in reading may be traced to their source in a similar way. In reading, however, the diagnosis is often more difficult not only because of the greater complexity but also because of the greater obscurity of the machinery involved.

Mass teaching is responsible for difficulty and failure in reading. A second cause of difficulties in learning to read is a consequence of the complex and concealed character of the reading activity. It is the fact that the teacher is required to teach reading to a whole group, often a large group, instead of teaching reading to one pupil at a time. Reading is a difficult skill to teach by group methods. Pupils differ greatly in their equipment and needs. The devices they employ, especially in the beginning stages, vary tremendously. A demonstration or explanation clear to certain pupils may be meaningless to others. Absence from school at critical periods may make it impossible for a child to understand the classroom work when he

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returns and efforts to follow the explanations may confuse him mentally and disturb him emotionally. If reading could be taught by individual tutoring, failure or serious deficiencies would be relatively rare. Reasonable intelligent individual remedial work will round out most reading defects and failures. Indeed, individual tutors or "remedial teachers" are highly successful even when they employ positively wretched materials and methods. Many classroom teachers would be more successful than some of these freakish specialists if they had equal opportunity to work daily with a single child. The "magic" of some remedial teachers is nothing but the potency of individual tutoring. In a practical sense, a major "cause" of reading defects is the fact that teaching large classes makes adjustment to individual needs difficult.

Despite the fact that a change from mass to individual instruction would reduce the frequency of reading defects enormously, pupils will differ in the ease with which they learn to read and the proficiency which they will achieve. Under any system, certain characteristics and limitations of pupils and certain circumstances and experiences comprise handicaps in learning to read. Some of these singly, or in combination with others, may, under group instruction, become an actual "cause" of reading defects.

Although by far the greatest progress in the diagnosis of difficulties in reading has been made during the past two decades, intensive research on the subject extends back for nearly half a century. During this time, different points of view and various lines of approach have appeared. Certain factors, once alleged to be causes, are now regarded with skepticism. In these chapters we shall consider briefly a few representative samples of causes.

Reading difficulty conceived as due to organic defects. The theory that reading difficulty is due to physical defects was most prevalent prior to 1910. It is represented in the work of most physicians, neurologists, and ophthalmologists, to whom reading defects were then frequently referred. It appears in such diagnoses as "word blindness," "congenital alexia," and others, which were based on the assumption that word images or memories were localized in certain circumscribed areas of the brain and that these areas might be con-

genitally defective or injured by disease or accident. Outstanding treatises representing this general point of view are James Hinshelwood's *Letter-, Word-, and Mind-Blindness* (Lewis, London, 1902); James Hinshelwood's *Congenital Word-Blindness* (Lewis, London, 1917); and Henry Head's "Aphasia: an Historical Review," in *Brain*, 1920, pages 87-165. The fairly recent date of some of these publications suggests the fact that the general point of view persists.

From an early period efforts were made to trace difficulties in reading to defect in the eyes, ears, speech organs, and other organs, as well as, or instead of, in the brain. Indeed, many investigators have been inclined to think that all serious difficulties in reading must be caused by some organic defect or deficiency. The normal child, it is assumed, should learn to read naturally without serious difficulty.

Although there have been many changes in opinion concerning the importance of specific defects, the general view that serious difficulties in reading are due usually, if not invariably, to organic deficiencies is represented in the work of several investigators today. While many doubt the validity of such older concepts as "word-blindness," probably all recognize the possibility that certain impairments of the visual or auditory apparatus and of the speech mechanisms may be a serious handicap in learning to read. In such cases, the assistance of the family physician or of an ophthalmologist or other specialist is needed in correcting the defect, as well as modifications in the reading material, such as the use of larger and heavier type.

In such cases, much more than the character of the defective reading techniques must be taken into account. In other instances, as in pupils subject to constitutional neural or emotional disorders, the nature of the learning activities, the length and variety of lessons, and other aspects of the remedial program must be adapted to the individual's make-up as a whole as well as to the specific reading deficiencies.

Reading difficulty due to organic conditions which are not really defects. The type of organic condition which while not defective may hamper the subject in learning to read may be illustrated

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by cases of left-handedness or left-eyedness or of both. These conditions do not represent defect or deficiency; they are abnormal only in the statistical sense of being less frequent than right-handedness or right-eyedness. It is contended, however, that the left-handed child, for example, finds somewhat greater difficulty, for reasons to be given later, in acquiring the left-to-right eye movements required for reading than does the right-handed pupil. Consequently, pupils with this characteristic require special instruction, guidance, and experience to compensate for the handicap which it produces in reading.

Indeed, some writers have stated that such characteristics as left-handedness may be the main causal factor involved in many difficulties in reading. A person approaching the problem of reading defect from this point of view would include in the diagnostic program comprehensive tests of such organic characteristics.

It seems desirable for the present writer to reveal, at this introductory stage, his point of view, or what may be his prejudice, concerning the several causes of reading difficulty. The writer does not share the view that all reading difficulties are due to organic defects or characteristics such as those mentioned. He believes that organic defects are in many cases primary or contributing causes of difficulty, but that other factors to be listed later are frequently the real sources of trouble. He is frankly skeptical of the importance of some of the "organic characteristics," such as left-handedness or left-eyedness as a source of reading defect. He believes that some investigators have greatly exaggerated the role of such factors. Tests and examinations of such organic defects and characteristics are, however, included in the present diagnostic program. Where differences of opinion exist, the topics will be given rather extended treatment in later chapters.

Reading difficulty conceived as due to deficient psychological processes.

The rapid growth of experimental psychology of the functional school after 1900 resulted in a tendency to consider defective psychological processes as causes of difficulties in reading. In the diagnoses of certain investigators, one finds statements that reading difficulties are due to "marked deficiency in visual percep-

tion," "visual imagery," or "visual memory," to "visual memory span," or "poor recognition memory," "weak power of auditory analysis," "defective visual-auditory association," and the like. Such a treatise as A. F. Bronner's *Psychology of Special Abilities and Disabilities* (Little, 1917) is fairly representative of this point of view.

Such a program was usually based upon the assumption that reading depends upon certain psychological processes, such as visual perception, visual discrimination, visual imagery, visual memory, visual association, and so on. Defects or deficiencies in one or more of these constituent processes—whether due to organic defect, native or acquired, or to inadequate cultivation, or however caused—would, it was held, interfere with learning to read. Diagnosis, consequently, consisted in applying a test for the general process—a test for visual perception, visual memory span, auditory discrimination, or visual-auditory association. If a weakness was found in any such process, the remedy usually consisted either in applying exercises to improve the process or in modifying the method of teaching so as to utilize more the strong processes and to depend less upon the weak ones. This general plan, which depended largely upon the use of stock tests from the psychological laboratory, may be called the "psychological test method."

The author's present program embodies relatively little exploration of "auditory perception," "visual memory," and so on, in general. It is concerned more with the examination of more special or specific abilities and techniques, as will be explained presently. Nevertheless certain concepts are retained and search is made, for example, for the pupil who, while showing no discernible visual defect, is slow and clumsy in visual perception of items comparable in size and general complexity to words. At present we really do not know whether such a deficiency is based upon some undetected or unknown organic condition or upon inadequate techniques of a widely applicable sort. In this category might be included certain pupils, found among the "nonreaders," who are classified as "unable to sustain attention," "easily distracted," "unable to persist in the face of difficulty." Whatever the ultimate cause of such character-

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istics may be, it is desirable to identify those that seem to prove to be a handicap in learning to read, since the remedial program and the promise of improvement depend in some degree upon them.

Constitutional immaturity. Another assumption is that difficulties in reading result from beginning the subject before the pupil is physiologically or mentally mature enough to master it. Mental immaturity (low mental age), incomplete development of the visual or auditory apparatus, lack of precision in motor control and speech, are examples of organic or physiological deficiencies which may handicap the learner. The fact that several studies have shown that boys, who are believed to mature less rapidly in the earlier years than girls, are more frequently subject to reading difficulties, is cited in support of the immaturity theory.

That children immature mentally—for example, those whose mental age is less than six years—will find most beginning reading programs difficult is undeniable. Consequently, among reading failures will be found a large proportion of children with relatively low mental age. But children of average and superior mental age will also appear. Not all reading difficulties are due to mere organic immaturity of some sort. Immaturity in vision, hearing, perception, motor control, sometimes plays a role in producing reading difficulty.

For the prevention of reading difficulty resulting from immaturity the common prescription is to delay the beginning until the child has naturally reached the adequate level of maturation. Several "reading readiness" tests have been developed to determine this level. Although the level suitable for one introductory program is different from that for others, the desirability of determining the pupil's fitness for a particular program is undeniable. The problem then becomes the more general one of adjusting the materials and methods of the reading program to the abilities and needs of the individual.

Educational immaturity; lack of "reading readiness." Immaturity due to limited experiences and educational contacts rather than to physiological or organic factors may be involved in various degrees in reading difficulty. Limited experiences in conversation,

story hearing, playing with pictures and picture books, and other schoollike situations, meager experiences in cooperating with other children, in learning with an adult or in working alone; marked preference for active motor or mechanical play, and the like, may result in limited interest and ability for learning by certain methods. Merely to await the spontaneous appearance of "readiness" or to rely upon the average teacher's judgment, unsupported by records of achievement and reading readiness tests interpreted in relation to the reading program to be followed, is an obviously dangerous practice. The modern policy is to determine as definitely as possible each child's status in the abilities and interests involved in learning to read and to provide definite instruction to improve weaknesses and deficiencies until the pupil is demonstrably equipped to learn.

Reading deficiencies due to unfortunate forms of motivation. Among poor readers and nonreaders will be found instances of misleading motivation, antipathies, negativistic attitudes, and rationalizations. In one case, a pupil resisted learning to read because she found that, as she learned to read by herself, her mother began to give up reading aloud to her. Another pupil became negativistic toward reading because his mistakes were laughed at by two girls younger than he in the same class. He preferred not to try to do the things in which he could not surpass these two girls. Another child enjoyed the special attention which her difficulty in reading brought to her. These are samples of the many social patterns in which learning to read may be so caught up as to misdirect the incentives. Some specialists in reading, not to mention certain psychologists, psychoanalysts, and psychiatrists, are disposed to believe that inadequate motivation is probably at the bottom of most failures in reading. Unless reading satisfies some purpose in the child's life, it will not prosper. In these cases, the readjustment of the pupil's affairs so that learning to read becomes a help rather than a hindrance in satisfying his desires may be of primary importance.

Without—it is hoped—taking an extreme view, the writer is disposed to place great importance upon the role of motivation as a factor in causing and correcting difficulties in reading. Study of the personal and social relationships in which the reading problem

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is found, is, from his point of view, an important part of the diagnosis, as will appear in later chapters.

Reading difficulties due to failures to acquire essential techniques. Failure to acquire one or more of the many techniques or skills involved in reading is believed to be a common source of difficulty. The procedure adopted by the investigator is to attempt to make an inventory of all the reading skills or techniques found to be essential, and to devise for each a simple test by means of which the technique which is absent, weak, or distorted may be discovered. Once the inadequate or inappropriate skills are located, remedial instruction designed to develop them in appropriate form and to serviceable strength is undertaken. This program then is primarily one of educational diagnosis preceded by educational analysis and followed by educational treatment.

Among investigators who believe that many difficulties in reading are due to failures to acquire the essential techniques are some who tend to locate the cause in inadequate teaching, and others who believe that, in addition to ineffectual instruction, uncontrollable accidents in what is necessarily largely trial-and-error learning, are causal factors. Some persons dislike such phrases as "inadequate teaching," since it implies that the teacher is to blame for difficulties arising in reading, whereas in fact, certain defects might arise in the classes of the best teachers as a result of too large groups, inadequate materials, and general lack of knowledge of certain subtle phases of the reading process. Certain conveniences are achieved, however, by discussing separately what may for lack of better terms be called "ineffectual teaching" and "accidental factors in learning." We shall therefore devote some space to each.

Reading deficiencies may be due to ineffectual types of teaching. Types of teaching that may be classed as ineffectual are the following: Methods which require the teacher to tell, explain, and otherwise teach everything orally to the class as a whole, instead of employing materials and methods which provide opportunities for individual instruction; the use of material that is too difficult to permit natural, full-fledged reading; the use of content that is dull or trivial; methods of teaching that kill the interest in a selection

before it is read; overemphasis upon exacting and formal oral reading and recitation; failure to correlate reading properly with linguistic, artistic, dramatic, constructive, and other enterprises, with the result that it becomes an isolated, academic activity; overemphasis upon phonetics, isolated word study, and analytic drills; overemphasis upon such mechanics of reading as word pronunciation or word-recognition skills; failure to check up on the development of the basal skills at reasonable intervals; failure to provide an abundance of full-fledged, easy reading; failure to give young pupils sufficient guidance in methods of reading from left to right, or of studying an unfamiliar word systematically from left to right; failure to attract the pupils' attention to characteristic features of words, or otherwise to help them develop the basal skills; these are examples of errors in teaching which permit, if they do not directly develop, more or less serious difficulties in reading. There can be no doubt that some failures in reading result from poor teaching.

Unfortunate "accidents" in the process of learning frequently result in reading difficulties. The necessity of teaching reading, especially the beginning stages, to thirty, forty, or more very different pupils by mass methods, often with rather inadequate equipment, is responsible, the writer believes, for no small measure of reading difficulties, due to accidents in trial-and-error learning. Since this becomes apparent when the learning of individual pupils is carefully checked up under experimental conditions,¹ we shall pursue the topic further at this time. In a study by Dr. Lois Meek, for example, a group of children of average and superior intelligence who had not yet learned to read a word, were provided with identical first lessons, consisting of five boxes with one of the following words: *ball*, *bolt*, *bell*, *fall*, *roll*, on the top of each. Dr. Meek showed the pupil the real ball in the box whose cover

¹ As in such studies as the following: Gates, A. I., and E. Becker, "A Study of Initial Stages in Reading," *Teachers College Record*, November 1923, pp. 469-90; Meek, L. H., *A Study of Learning and Retention in Young Children*, Teachers College Contributions to Education No. 164, Teachers College, Columbia University, New York, 1925; Buswell, G. T., *Fundamental Reading Habits: A Study of Their Development*, Supplementary Education Monographs No. 21, Department of Education, University of Chicago, Chicago, 1922.

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bore that word, and explained that if the pupil picked out this word-picture three times in succession he might keep the ball. Without exception the pupils entered upon this game with enthusiasm. Some succeeded at once and gained increasing skill rapidly in similar games with other words. Some learned quickly but apparently did not acquire a method of reacting to the word that was of much assistance with later lessons. Some learned each word by noting a characteristic detail such as the monkey's tail on the *y* in *monkey* or the hole in *hot*; some observed mainly the first letters, others the last or middle, others reacted chiefly to the general configuration of the word. There were many types of reaction and many degrees of success. There were a number who could not master the task although they kept at it until, after more than a hundred trials, they were quite discouraged. Tests of intelligence and of ability to learn in other situations made it quite certain that those failures were not due to general dullness, inattentiveness, organic defects, initial lack of interest or effort. They were probably due to ineffective modes of reaction and to the inability of the pupils to discover by themselves effective types of response. That such was the case was indicated by the fact that guidance by the investigator given after the pupils had suffered failure for a period of time enabled them to adopt a better type of reaction and thereby to learn the words.

The behavior of these children, especially of those who failed or learned slowly, affords considerable insight into the origin and causes of certain difficulties in reading. The pupils, whose difficulties were due to ineffective types of reaction to the words, were at the beginning as highly interested in the game as the others. But, as repeated failures met their efforts to learn, their interest began to wane. Soon a few pupils showed every evidence of distaste for the task. One hid behind the piano when the investigator appeared; another refused to try when the task was set; another told the investigator in no uncertain terms what she thought of "that old game." In such cases distaste and half-hearted effort were added to disadvantageous modes of learning, each magnifying the other. Had such conditions been permitted to continue, the result would

doubtless have been, in time, a serious "disability" in, and hatred of, reading. Probably many "disabilities" in reading arise in just this way; perhaps some of them originate in the very first lesson.

Point of View of This Book on Causes of Reading Difficulty

The point of view represented in this volume concerning causes of difficulty in reading may now be briefly stated. Most difficulties, ranging from the least to the most serious, are believed by the writer to be due primarily to failures of the pupil to acquire techniques that might have been acquired had the right guidance and instruction been given at the right time. The author recognizes, however, that many different factors may serve as a handicap to the child in learning to read. Failure to learn to read in these cases is the result of failure to recognize the handicaps and to provide instructional methods and materials which enable the pupil to circumvent or surmount them. A great variety of factors may constitute more or less serious handicaps. For example, various circumstances may result in the development of misleading motivation or lack of a real desire to learn to read. In such a case failure to recognize the unfavorable motivation and to build up a positive drive to learn to read may be primarily responsible for the resulting difficulty. It is recognized, furthermore, that various weaknesses and defects of the bodily organizations and mechanisms involved in reading may prove to be handicaps, often very serious ones. Similarly, certain individual physical or mental characteristics, such as left-handedness or a volatile personality, may predispose a pupil to encounter difficulty. Mere immaturity in mental age or vision or speech or motor control or other aspects of organic development may produce a mild or a very serious handicap. Immaturity or backwardness in the development of many interests and skills in the prereading stage may comprise a significant handicap. The child who has heard few stories, has had little experience in conversation, whose background of information is meager, or who has not learned to cooperate with other pupils or maintain his attention on what an adult may be saying, has failed to learn important skills directly involved in

Main Characteristics of the Proposed Program for Improvement of Reading

reading. Other social factors, such as overanxiety of the parents or teacher concerning reading, parental interference, and a miscellany of other factors, such as absence from school at critical times, poor physical health, conflicts among pupils, emotional tension in the classroom arising from embarrassment over mistakes, are samples of many conditions and circumstances that may produce mild or even serious interferences with the child's efforts to learn to read. Such factors as excessive eagerness and effort in learning, which may result in tension and distraction, should not be overlooked.

In brief, reading disabilities result from failure to identify all possible handicaps and to arrange instruction in such a way that they are directly or indirectly surmounted. The causes of reading disability are many; the remedies lie in improved, especially highly individualized, instruction.

Main Characteristics of the Proposed Program for Improvement of Reading

The viewpoint represented in this volume is that the improvement of reading ability of pupils in elementary school can be achieved when the teacher has acquired certain knowledge and skills. The effective functioning of the good teacher of reading depends upon the following four achievements:

1. The teacher should understand the nature of the reading process.
2. The teacher should know how to diagnose the pupil's abilities and difficulties in each of the essential abilities and techniques involved in reading, and how to locate and take care of the handicaps which may interfere with learning to read.
3. The teacher should know various good methods of developing the basal reading abilities and techniques.
4. The teacher should know how to adapt the materials and methods of instruction to meet precisely the individual needs, the strengths and weaknesses, of each child.

The major task is that of outlining the characteristics of good reading techniques and the nature of good methods of developing them. Successful teaching or remedial work cannot be achieved

unless the teacher knows in considerable detail the characteristics of good and poor reading performances. She must know the kinds of devices pupils are likely to employ, the merits and limitations of each of these, how they are organized to work as a team, and how they should be reorganized to achieve increasingly higher levels of ability. Successful remedial work is not to be sought in a single rigid prescription to be applied, however diligently, to all pupils, but rather in an understanding of the component techniques of competent reading, of the various ways in which they may be developed, and the choice of materials and methods most suited to individual pupils in the light of their various limitations and aptitudes.

Organization of This Volume

It will perhaps be helpful to the student to know in advance the plan of organization embodied in this volume. The first five chapters are designed to give the reader an overview of diagnosis and instruction in reading. The remainder of the book offers more definite and detailed explanations, suggestions, and directions. The difficulty of presenting the material offered is the common problem of presenting fully and clearly one aspect of instruction in reading before the reader is familiar with the other aspects. To meet this difficulty the following four chapters offer a brief description of the program as a whole. Their major purpose is to orient the reader and to give him a background of understanding which should enable him to view the later chapters more comprehensively.

Chapter 2 consists of a brief sketch of the reading process. In this chapter typical reading activity is described at each of several stages of advancement. The purpose of this chapter is to give the student some measure of understanding of what reading is and how it goes on.

Chapter 3 includes a brief description of various reading tests and diagnostic materials and methods. To be more exact, it provides an introduction to the program of testing and diagnostic materials and methods which the author has developed over the course of years.

Organization of This Volume

This presentation is not designed to equip the student with the information needed to give the tests, score them, or interpret the results, but merely to provide him with a general understanding of the nature of the tests and other instruments provided, the kinds of abilities they are designed to measure, and the difficulties they were developed to reveal.

Chapter 4 gives a survey of the more important abilities and characteristics, such as verbal aptitude, vision, emotional adjustments, upon which learning to read depends. It suggests various tests, examinations, and observations which the reading specialist uses in addition to reading tests in diagnosis of reading ability and reading difficulty.

Chapter 5 is a discussion of certain general characteristics of teaching and especially of remedial instruction. In this chapter no effort is made to give a description of precise methods or devices for improving particular abilities, but merely to present certain general concepts and points of view which will be later illustrated in detail. In this chapter certain desirable and undesirable features of all kinds of teaching and remedial work will be discussed.

The remainder of the volume consists of a series of chapters, each devoted to some aspect of reading. The various aspects of reading are taken up roughly in the order of their complexity and in the order in which they appear as indispensable achievements in the course of learning to read. The first topic is the acquisition of various interests and abilities comprising "reading readiness." The next topic is concerned with the recognition, pronunciation, and understanding of single words. The first thing a child must do in learning to read is to succeed in developing a technique whereby he can learn to recognize words. If a child cannot recognize single words, he obviously cannot learn to read sentences or paragraphs. Several chapters are devoted to various aspects of this problem. Following a consideration of all phases of word recognition, a chapter on the development of skill in phrasing or reading "by thought units"—that is, of recognizing in one "eye-ful" two or more words comprising a thought unit—is given. This ability depends upon and grows out of the skill in recognizing single words. Later chapters

will be concerned with various phases of full-fledged reading, such as sentence comprehension, paragraph comprehension, comprehension of longer passages, and methods of appraising and developing a great variety of types of reading ability varying from skimming to reading precise directions for the purpose of remembering the pertinent steps exactly. Following this section appears a chapter devoted to the problem of providing special adaptations to pupils with visual defects, low mental age, and other handicaps, including a more detailed discussion of the characteristics of the extreme disability or "nonreader." A final chapter presents a variety of detailed case studies and certain suggestions for the more typical clinical approach to the most extreme cases.

The Appendix includes complete details for administering and scoring the *Gates Diagnostic Reading Tests*. This section includes the norms for converting the scores obtained from these tests into the reading age score or reading grade score. Detailed directions for giving certain other informal tests, such as tests of hearing ability, handedness, certain speech defects, and so on, will also be included in the Appendix.

References

Most of the books in List A and several of those in List B in Appendix 1 deal with the general problem of this chapter. N. B. Smith, *American Reading Instruction*, Silver Burdett Company, New York, 1934, is an excellent historical survey of school practices and theories in teaching reading.

Exercises

The following questions and exercises are given to assist the reader in studying the text. They may also be used for group discussions.

1. What school subjects and activities are dependent upon ability to read?
2. What is one of the most important, if not the primary, cause of school failure?
3. What are reasons for and against promoting children from the primary grades if they cannot read efficiently?

Exercises

4. How do individual differences operate to make the task difficult for the teacher of beginning reading?
5. Discuss the possible influence of organic defects on children being taught to read.
6. What is the author's point of view about the influence of organic defects on reading progress?
7. What is the "psychological test method" of remedial reading diagnosis?
8. Discuss "constitutional immaturity" as a possible cause of reading retardation. What effort is frequently made to determine whether a child's level of maturation is adequate for reading? What general recommendation about teaching method made in this chapter would be very effective in reading with beginning readers at different levels of mental maturity? Are all reading failures due to mental immaturity?
9. Discuss "educational immaturity." Would you expect children with kindergarten experience to show more reading readiness than those without it? Why?
10. What may be the influence of motivation on reading progress? What is likely to be the effect of early unfortunate experiences in learning upon motivation? What influence may ineffectual teaching have on motivation? Why?
11. What knowledges and skills should be possessed by a good teacher of reading?

chapter 2 A Brief Sketch of the Nature and Development of Reading Abilities

The course of the development of reading ability from the beginning to the most mature level can be indicated in various ways. One way is to determine the number of words read per minute at different stages. Another is to determine the number of eye-fixations or eye-stops made in reading a line of typical material at each stage. In general, there is a close correspondence between the number of fixations per line and the rate of reading. The figure on the following page shows a curve which indicates the development of reading skill in terms of the decreasing number of eye-fixations per line from the beginning of Grade 1 to the college level. Note that growth is relatively rapid during Grades 1, 2, and 3, that it declines to a steady but relatively slight increase after the fourth grade.

Stages in Reading Development

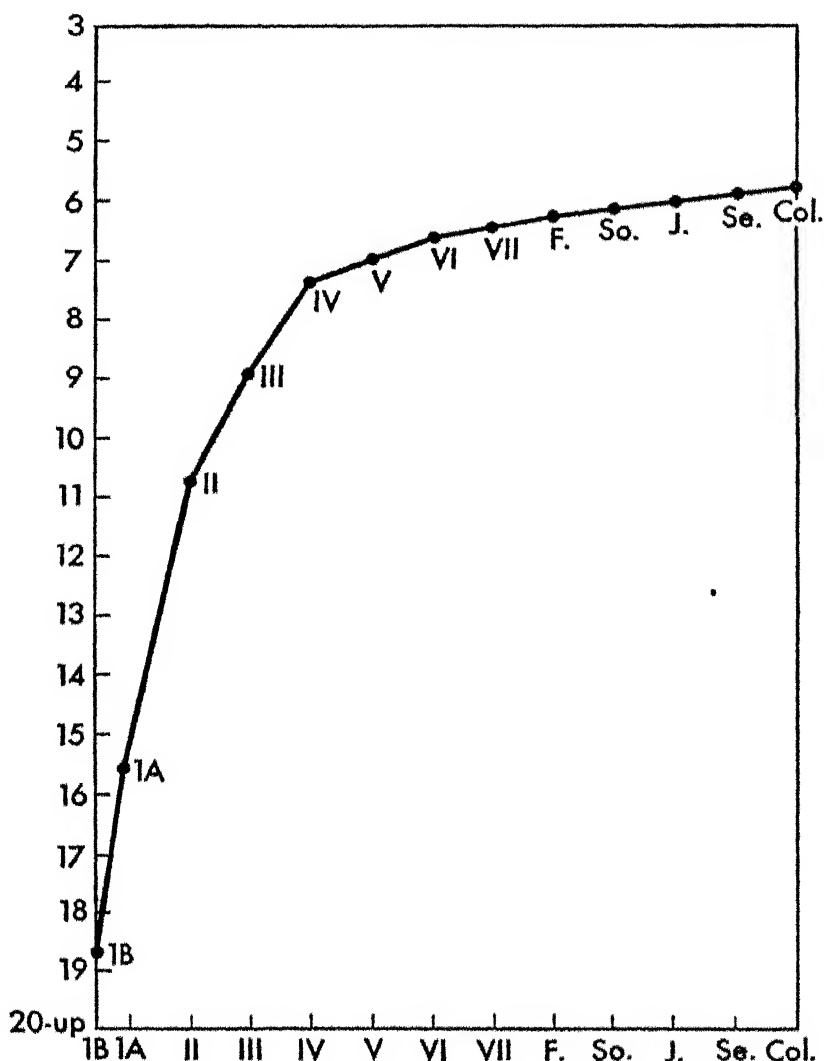
Records of Growth in Reading Ability

The course of growth indicated by the graph is the picture of the average or general trend. The curve is made by combining the records of many children. While the majority of them follow this curve more or less, few will be so smooth and uniform, and a certain number of wide variations from the representative curve will appear. It will be found, for example, that some children tend to habituate their speed and make no further progress at various levels, some at the second-grade level, others at the third, still others at the fourth, and so on. These are children who for one reason or another have failed to acquire all the abilities essential to a higher level of performance. Some pupils, in fact, may show quite marked ups and downs from grade to grade and occasionally a child will drop back for a prolonged period. In brief, all sorts of irregularities will appear in individual cases.

The growth of other major aspects of reading, such as reading vocabulary, the level or power of comprehension, the fullness and accuracy of understanding, would probably show continuous development throughout the elementary period. The actual shape of the curve will vary somewhat with the aspect of reading ability measured, but in general growth tends to go on constantly, although with varying speed, in all these phases of reading.

Stages in Reading Development

Despite the fact that for a group of pupils as a whole growth in reading competence continues through the elementary school and somewhat later, it has been customary to break up the period of growth into stages. The word *stage* indicates steps or abrupt shifts from one level to another and may, therefore, seem to be inconsistent with the continuous course of development shown by most measures of general reading competence. While there is a certain artificiality in referring to stages in reading, it is nevertheless a valid and useful procedure. Although such a general factor as the



Growth for average number of fixations per line in silent reading. School grades are shown on the horizontal line and also on the graph; the average number of fixations per 3.5 inch line on the vertical axis. The graph represents a "smoothing" by the author, to indicate the probable curve representing the average of a large number of pupils, of Fig. 1, page 27 of Buswell, G. T., *Fundamental Reading Habits; A Study of Their Development*, Supplementary Educational Monographs No. 21, University of Chicago, Chicago, 1922.

The Prereading Period

speed of reading may develop continuously there may be shifts from one underlying technique or skill to another. The speed of reading may show very little change at times when quite revolutionary modifications are going on in the techniques of perceiving words. When reading is viewed from a practical point of view, moreover, stages may be identified. For example, in the initial period of reading there is a stage at which most children can read only those words which have been previously introduced and studied, whereas later the pupils achieve ability to work out the recognition and pronunciation of many unfamiliar words by themselves. A sketch of some of the more obvious stages of this sort will help us understand the nature of reading even if there is a certain artificiality in it.

The reader may note that different authors describe somewhat different stages. This does not necessarily mean that the authors are in serious disagreement or that some are wrong and others right. The stages one selects depend upon his purpose, upon the point of view from which he wishes to make an analysis of growth in reading ability. The stages to be presented shortly are selected for the purpose of illustrating some of the more important techniques and limitations shown by the typical pupil as he progresses through the elementary school. Study of these stages will point out the nature of the different kinds of abilities and techniques that tend to be adopted at particular times and the importance of advancing from one form of technique to more advanced types as experience makes this possible.

It should be repeated that the rate of growth from stage to stage mentioned in the following sections is approximately that found in the case of the average pupil. Some rapid-learning children will move through the stages in far less time and some of the less rapid-learning pupils will progress much more slowly.

The Prereading Period

Soon after birth, the child begins to acquire information and skills which are essential for learning to read. The course of his

growth in these basal abilities and knowledge depends upon his aptitude for learning and upon the opportunities and guidance provided for him before he enters the first grade. These prerequisites to reading continue to develop until the pupil reaches what is popularly called a stage of "reading readiness." When we say that a child has reached a state of "readiness" for reading, we mean that he has developed certain interests, abilities, and information to a point sufficient to guarantee, under normal circumstances, success in actually learning to read.

Before a child is many months old he begins to learn to recognize spoken words and acquires some notion of their meaning. Shortly thereafter he learns how to say individual words and is soon able to use them in phrases, sentences, and even paragraphs. All these abilities are directly involved in learning to read. It would be obviously much more difficult for a child to learn to read English if he had not previously acquired ability to understand and speak English words. Ability to understand and speak English is an important component of reading readiness.

During the early years some children learn to discriminate the sounds of words more or less well and to note some of the recurring components of syllables in words. The child who has played games involving rhyming words or repeating words with a similar initial sound acquires an insight into the sound characteristics of words which makes it easier for him to profit by phonetic instruction in the early stages of teaching. Ability to pronounce words and sentences in the acceptable form so that corrections by the teacher or ridicule by the pupils will not be incurred is also an asset in learning to read.

The ability to pay attention to what someone else is saying and to remember what has been said is subject to improvement through experience. The child who can attend fully without stress or strain and remember well what the teacher says in directions or explanations is more likely to profit from the reading lessons. The child who, through early language experience, has acquired a wide range of word concepts and understandings has an advantage. There is also such a thing as acquiring a *story sense*. Children who have

The Prereading Period

heard and enjoyed many stories acquire certain techniques of listening to and analyzing the material. Since the early reading lessons employ stories and other selections, the greater the pupil's ability to grasp the meaning as it develops the greater the help he will get from the context in learning to read and usually, the greater his interest in the content.

Many other things are acquired in greater or less degree before the pupil attempts to learn to read. For example, considerable learning is required to interpret pictures of different types. Children who have had abundant experience in looking at pictures and who have made interpretations of them have acquired facility in getting meanings from illustrations. Modern books for teaching reading make great use of pictures, and the more advanced a pupil is in his skill in interpreting the pictures the more help he will get from them in his initial reading lessons. The child whose color vision is good and who knows the names of colors will have an advantage over the pupil who does not discriminate the colors well and confuses their names.

Ability to use various common objects, such as chalk, crayons, pencils, paint brushes, scissors, books, tablets, plays a role in learning to read. The modern school program employs a variety of these devices, and the child who knows how to use them well can give his mind more fully to the problems of reading itself in the initial stages.

Certain abilities very closely related to actual reading are acquired in various degrees before the pupil enters the first grade. The child who has had many picture and other books at home may have learned how to pick them up, how to handle them, how to turn pages, how to follow lines of print, and such a child has an edge over the pupils who have all these things to learn after they reach school. Even before they can actually recognize or read any words, children who have had opportunity acquire certain techniques of looking at words. For example, the pupil who frequently notes the headings in newspapers, sees words on billboards, on street cars, in store displays, may acquire a certain sense of familiarity with words and may pick up some degree of familiarity both with words and

letters. The more advanced a pupil is in his familiarity with words, the more ready he is to take the additional steps required to recognize them accurately.

The sketch above covers only some of the most obvious abilities and interests upon which actual learning to read depends. Many other factors may play a role. For example, the pupil's enthusiasm or lack of it for learning along any line will show its influence in learning to read. Furthermore, favorable or unfavorable emotional adjustments made during the early days of school will condition the pupil's success in learning to read. It is obvious that success in reading depends in no small measure on the equipment and attitudes of a child at the time of beginning to read. It is therefore important to diagnose the pupil's equipment as far as possible when he enters school and to provide experiences for teaching the essential information and skills and for redirecting emotions and attitudes into favorable channels.

The Reading Readiness Program Period

A rapidly developing practice is that of making an appraisal or diagnosis of the pupil's equipment in such respects as were mentioned in the preceding section, in the early part of the first-grade program. Usually this diagnosis or "reading readiness testing" is begun after the pupils have been in school a week or two. On the basis of the results of the diagnosis a reading readiness program is introduced for those who are not as yet "ready" to begin actual reading successfully. We shall refer to this period in which a definite reading readiness program is in operation as the "reading readiness program period." It may last from a few weeks to several months, in some cases as much as a year, in rare cases even more.

The purpose of instruction during the reading readiness period is to develop all those forms of information, skill, and interest which are necessary for successfully reading. Suggestions for conducting the reading readiness program are given in Chap. 6. This period culminates in a status of "reading readiness" at which time the pupil has acquired many of the basal techniques and abilities es-

The Beginning Reading Period

sential for learning to read. When he actually begins to read he has much less to learn; he can give his mind more completely to the learning of new abilities required in actual reading and is much more likely to find learning to read easy and satisfying.

The Beginning Reading Period

This is the period in which the pupil undertakes definitely to recognize words and read sentences. The crucial matter at this period is whether the pupil can observe and study words with sufficient skill to enable him to recognize them later speedily and accurately enough to get the meaning of a sentence. He cannot, of course, read a sentence or even a phrase unless he can recognize most of the words in it.

In the beginning stage children attempt to learn to recognize words by studying them in various ways. If they are previously completely untutored and inexperienced in dealing with words a wide variety of devices is employed. Some of these will be successful enough to enable the child to recognize and remember words sufficiently well to read with understanding. Without previous tutoring some children will adopt methods of identifying words which are inadequate for the purpose, and these children will reveal a great variety of confusions, difficulties, and mispronunciations. Some of the ways in which children undertake to recognize words will be outlined in a later chapter. Pupils who have been properly prepared either by incidental experience or by an effective reading readiness program will usually succeed in discovering in words sufficiently distinctive features to enable them to recognize them when they see them again, even after an interval of time. Depending upon their total ability, these children will accumulate a reading vocabulary more or less adequate for the modest demands of reading at the initial stage.

During this stage a typical pupil will recognize certain words very promptly and accurately, others moderately speedily and surely, and still others, especially those recently introduced, more slowly and less surely. His progress along a line of printed words

comprising a sentence is likely therefore to be somewhat uneven, some words coming quickly and readily, others requiring more attention and time. His reading is word-by-word reading. He must look at each word. In many cases he must take several glances at the word, then move on to the next, and so on.

The typical pupil will get a meaning of the printed sentence less easily than he would get the substance of the same sentence clearly spoken to him, for the reason that some of his attention must be given to the mere mechanics of recognizing words. The typical pupil, however, will understand the sentence quite well even if slowly. His speed during a first reading is likely to be considerably lower than a typical rate of speaking. If the pupil pushes up his speed he is likely to make errors. Oral reading will be more difficult than silent reading because, as will be pointed out later, it is a much more complicated task.

At this stage the typical pupil cannot recognize words that have not previously been taught to him or worked out by earlier study by himself. He may sometimes guess the unfamiliar word correctly when it is in a simple sentence and carries the most obvious meaning. He does this by utilizing the meaning of the sentence as far as he has read it. Often he will give a synonym which conveys the proper meaning although it may be an entirely different word in form, such as "papa" instead of "father."

At this stage the pupil learns words either by guessing from context, as suggested above, or perhaps more commonly by having them presented to him by the teacher, who gives the word's pronunciation, or by getting the meaning from some especially constructed exercise in which, by means of a picture or some other medium, the meaning is indicated. The child typically then studies the visual word form, as he would study an unfamiliar face, and by one or another process of analysis searches out some features for later identification. As he sees the word repeatedly in isolation or in text, he becomes more and more familiar with it. At this stage, however, he cannot read a text which contains many unfamiliar words. He is typically quite incapable of working out the recognition and pronunciation of a word presented in isolation, without

The Beginning Reading Period

any clues to its meaning. Real reading—that is, reading with a reasonable degree of fluency and clearness of understanding—will be confined to texts composed wholly or at least largely of previously studied words.

After a month, more or less, of experience in identifying words and reading the familiar ones in various contexts, the child will have achieved considerable facility in many of the reading techniques. He will know how to progress along a line of print, how to read sentences, phrases, and isolated words, and he will have acquired increasing skill in guessing the meaning of unfamiliar words from the context. He will become increasingly quick and effective in learning new words presented in a basal program. He will be making a beginning in the complicated technique of deriving some clues to the word's pronunciation from its visible features. He may, for example, acquire some skill in noting the initial part of words and the resemblance of these to other words previously well mastered. He will be learning to combine suggestions from the context or meaning of the material with suggestions from some visible characteristic of the word and will succeed in recognizing the word exactly. The typical child, however, will be able to read smoothly and fluently, with full understanding, only material largely composed of familiar words for a period of approximately three months, after the beginning of instruction in actually reading.

During this period it is inadvisable to urge the typical child to read miscellaneous materials containing many unfamiliar words, except under the teacher's supervision. The reason for this is that it is better to utilize this period to cultivate fluent reading habits, precise and accurate word comprehension, even at the cost of the restriction in the materials read, than to force the beginner to go through a struggling, translationlike process to which he must resort when the material contains too many unfamiliar words. It is important at this stage to get the pupil into the habit of reading smoothly with his mind given primarily to the thought, so that proper techniques of genuine reading will be exercised. Texts containing many unfamiliar words, such as the new or basal words to be introduced, should be presented in a specially arranged context

in which the maximum clues are given and usually under the supervision of the teacher, who can release a child promptly from a fruitless struggle with the difficult words. Forcing pupils to read material containing many unfamiliar words incurs the danger of interfering with the development of fluent reading habits and thoroughgoing comprehension. There is danger, too, that the pupil will come to think of reading as hard work, as the adult would regard his attempts to read difficult mathematical material or a foreign language, rather than as an easy, enjoyable activity.

The Initial Independent Reading Period

Gradually the pupil learns to work out the recognition and pronunciation of words in simple material. He does this by using at the same time the meaning of the passage and the characteristics of the unfamiliar word form. At the initial independent reading period the pupil will be successful only when the meaning is quite clear and the unfamiliar words appear infrequently. His power, of course, increases gradually, with increasing experience. In general, it is advisable to avoid introducing texts that are too formidable or pushing the process of independent word recognition too hard. The danger is that the basal reading skills and confidence in achievement will be jeopardized. Such tasks as reading difficult material orally at sight are especially dangerous.

This is the stage in which the pupil will be achieving a reasonable mastery of the process of reading simple, connected material with appropriate eye movements and full understanding. It is a period in which he will be mastering some of the elementary techniques of working out the pronunciation and meaning of unfamiliar words. Precisely what techniques are employed will depend greatly upon the form of instruction adopted. It will depend also upon devices that the pupil himself adopts in a kind of trial-and-error procedure. The average pupil, however, acquires a few devices which give him a fair percentage of success in making out unfamiliar words. If he utilizes primarily small word units, such as the letters and their sounds, he may become reasonably successful with short, especially

The Advanced Primary Reading Period

monosyllabic words, but far less successful with polysyllabic words. If he has been given effective guidance in noting certain syllables and familiar phonograms, he may be fairly successful both with monosyllabic and polysyllabic words. At this stage the devices employed are likely to be numerous, with the result that children differ in types of words that can be mastered. It is a time during which effective instruction in word analysis pays rich dividends.

During this stage the typical pupil is largely reading one word at a time. He is rarely able to recognize in one glance a phrase or thought unit, such as "the cat," "in the car." He may, however, be able to recognize some of the words which have appeared with great frequency in the merest glance without making a detailed study of them. For example, although he may make a specific fixation of the first word in such a phrase as "the cat," "a cat," "her cat," the recognition of the word is so quick and accurate that the pupil can phrase his material fairly well. Mistakes in word recognition are nevertheless persistent and may indeed become rather more frequent as the pupil shifts from a careful study of each individual word to recognition by the slightest glance.

At this stage a child reads rather slowly during a first reading. Even when all the words are familiar he is unable to read as rapidly as he speaks. If unfamiliar words, or words not as yet frequently reviewed, appear, his rate will tend to fall considerably below a speaking rate. After the pupil has glanced over the passage silently he is usually able to read it again at a normal speaking rate.

The Advanced Primary Reading Period

After two or three months of experience in the preceding stage (or five or six months after the beginning of actual reading instruction) the pupil advances to what we shall call an "advanced primary reading stage." He will have acquired a considerable reading vocabulary of words that he can recognize quickly and accurately. He will have achieved much greater ability to use context clues and to work out the recognition and pronunciation of words from the visual and sound, or phonetic, elements. He will

have acquired greater ability to understand and organize and in various ways make use of the thought of the passage being read. He will have learned to recognize a greater number and variety of unfamiliar words with increased speed and certainty. He will therefore be able to read at a modest pace materials which contain a larger number of unfamiliar words.

When he is given a chance to glance over a passage in silent reading he will be able to reread the same passage orally with considerable confidence and accuracy. At this stage easy supplementary materials may safely be handed to him. It is usually advisable, however, for the teacher to know in advance the frequency with which unfamiliar words appear in such material. It is still advisable for the pupil to confine his reading to those selections which do not confront him with too many obstacles in the form of unfamiliar words. This is the time to get into full swing the steady, rhythmic progressions along the line and the habit of grasping the content accurately and fully. Too frequent interruptions are still likely to constitute annoying frustrations and interferences with fluency and understanding.

During this stage the typical child will reveal considerable inner speech in his reading. There may or may not be visible movements of the lips. The pupil is still, in a sense, translating the printed word into a spoken word in order to get the meaning fully.

Although the child is able to read a considerable range of materials by himself at this time, he is still functioning in what may be called the "primary" kind of reading. He is still appreciably below the level of the more rapid independent reading which eventually will come. For example, at this stage he is unable to get the thought as easily and as quickly from the printed text as he can from the spoken text. He is still a word-by-word reader. He is likely still to make a given number of errors in word recognition and frequently to fail to get the thought fully or accurately.

This period of advanced primary reading is fairly typical of the latter part of the second term in the first grade and is likely to run through half, more or less, of the first term in the second grade, in the ordinary case.

The Transition Period from Primary to Intermediate Reading

During the advanced primary stage the child is continually advancing in power and facility. The typical child in the latter part of this stage will begin to shift from a primary type of reading to a higher level of reading ability which we shall call "intermediate reading." A period of time is required to make this transition and we shall call this the "transition period." During this period marked changes in many respects are going on under the surface even though the curve of growth in rate of reading and in other respects may show a continuous, unbroken advance. This is the period in which the pupil must replace many primary or beginning reading techniques with more advanced and more subtle types of abilities. The transition stage, beginning a few months after the child enters the second grade, continues until the middle of the second term in the third grade or a little longer, in the typical case.

There should be a transition during this period from primary methods of word recognition to more advanced or intermediate stage methods. In the first grade a pupil can get along by utilizing mainly the technique of identifying letters or familiar phonograms like *th* and translating them into sounds which are blended or combined to suggest the pronunciation of a word. If he is largely dependent upon such devices he may be quite successful with the simple primary words, especially the monosyllables. As he gets into the second grade he will encounter a larger number of long, polysyllabic words. To work these out independently he needs to be able to perceive instantly as units component words and syllables. Even a word such as *below* is rather difficult to work out on the basis of the single-letter sounding device. It is much easier to recognize a word by seeing the two components *be* and *low*. Longer words are practically insoluble in terms of the smaller units. At this stage the pupil must learn to discover and combine or "blend" larger word units. In particular he should acquire some skill in discovering and combining syllables. For many children this represents a very distinct shift or transition in methods. If the

pupil does not succeed in making the transition he is likely to encounter considerable difficulty in the late second and third grades.

During the transition period the pupil will refine his perception of words so that an increasing number can be recognized instantly, on the basis of "reduced cues." During this stage a transition to a higher level of perception becomes possible. The pupil will begin to recognize certain phrases or word combinations at one glance quite as readily and as quickly as he previously recognized each of the single words in the thought unit. Such thought units as "in bed," "at home," "in the house," may be instantly perceived. When this ability is acquired the pupil will be able to read with greater ease, smoothness, and speed. He can take in a line of print with fewer eye-stops. He will be able to get the material in better organization. He will be on the threshold of acquiring what is called the "eye voice span" or the "eye recognition span"; that is, ability to get an impression of words in advance of those which occupy his thought at the moment. This enables him more effectively to use context clues and to give effective expression to his oral reading. During this stage, also, he will be able actually, at least in rereading, to skim, to some extent. He will, in brief, advance beyond the stage of word-by-word reading to reading by thought units. He will be able to advance, as one child expressed it, from the stage of "reading by talking" to the stage of "reading by thinking."

The Intermediate Reading Stage

In the preceding section we have described most of the features of the intermediate reading stage. It is characterized by greater speed, more advanced techniques, and greater flexibility. Word recognition in reasonably familiar material has now become so effective that the pupil can and does give his mind more fully to the thought. He understands and remembers better what he has read. He has reached a stage in which he can do more than merely comprehend the thought during reading. He can evaluate, even reflect upon it somewhat, during the process. During the course of

The Intermediate Reading Stage

reading a selection he can be making up his mind whether this is one that would serve well as a play. He can be deciding whether the material he is reading really gives a full answer to the question he had in mind in the beginning. He can decide what sections would be worth reading orally to other members of his group. He can, in short, be achieving some degree of ability to employ various specialized types of reading comprehension. The average child enters the stage of intermediate reading skills in the latter part of the third grade.

A study by Dr. Dorris Lee¹ showed that in typical large American schools the demands upon reading ability in the fourth, fifth, and sixth grades are well beyond those which can be realized on the basis of primary reading skills. The sheer amount of material to be read requires considerable speed. The large vocabulary and formidable organization of typical materials in the social studies, sciences, and elsewhere require advanced techniques of working out the recognition of unfamiliar words. To meet the demands of the intermediate and upper grades the pupil must be able not only to read rapidly but to read in different ways and to select out and evaluate materials for various purposes. Dr. Lee found that children who have not equaled the level of reading ability represented by a reading grade score of 4.0 on typical standardized reading tests will be handicapped in schoolwork in the fourth and later grades. She referred to this as the "fourth-grade hurdle." What she meant was that unless the pupil had hurdled the barriers into an intermediate grade type reading, he would be handicapped in later work. Even pupils of superior intellect, although they could compensate by superior insight for what they lacked in reading ability, would have done better had they advanced in reading ability beyond the initial fourth-grade level.

There is evidence from various sources that children often need some help in breaking away from the primary reading habits to advance to the higher intermediate level. There are even cases in

¹ Lee, Dorris M., *The Importance of Reading for Achieving in Grades Four, Five, and Six*, Teachers College Contributions to Education No. 556, Teachers College, Columbia University, New York, 1933.

which perfection of the primary techniques presents a special danger, the danger that marked facility for reading at the primary level will induce a child to rest on his oars. Some of these children need definitely to be reoriented by means of effective guidance. They may become a special kind of reading disability—disabled for more advanced work by being habituated on a perfectionist primary level.

During the intermediate stage, roughly Grades 4 to 6 inclusive, speed of reading makes a steady advance and a variety of comprehension techniques are more or less well perfected. Greater reading speed is possible because of improvement in the basal techniques of word and phrase recognition, an increase in the reading vocabulary, and the further development of some of the special forms of reading comprehension. Among the types of comprehension are ability to read rapidly merely to get a general impression of the content; ability to read rapidly with the purpose of selecting certain information, such as that which answers a specific question; ability to read rapidly to note the outline and organization of the material; ability to read to detect specific details; ability to read very thoroughly for full memory, as in the case of reading to master the directions for operating a device; reading more slowly with thorough analysis, as in the case of "studying" school lessons; thoroughgoing reading of various types of symbolic or specialized material, such as problems in mathematics and physics. In this group also are included other specialized skills, such as skimming a selection merely to note the "high spots" of thought; rapid analysis of special material, such as a page from a newspaper; reading combined with or alternating with various other activities, as, for example, finding and reading a sentence in a selection that is mainly being given verbatim, reading sentences from one's notes during the actual process of extemporaneous speaking; and various forms of rereading, as, for example, rereading a chapter in a history book for the purpose of remembering the important items or of reproducing an outline, et cetera.

It should not be assumed that all these specialized types of reading are developed exclusively during the intermediate reading stage.

The Intermediate Reading Stage

Most, if not all, of these skills can be found, and are in fact exercised, in rudimentary form in the primary grades, even in the first grade. In the earlier stages they are uncertain and they are conducted relatively clumsily and incompletely. Ability develops gradually and in a typical case reaches a stage of considerable perfection in Grades 4 to 6, where wide reading and diligent study of different types are required by the typical school curriculum. The average pupil is able to acquire in fairly efficient form a variety of such reading skills during this period.

Two sources of reading difficulties or limitations may arise during the intermediate period. The first is the case of arrested development in one or all lines at some point during this period. The pupil, for example, may pass through the transition stage and reach the intermediate level, making appreciable progress during the fourth grade and then rest on his oars, continuing thereafter to function on the same low intermediate level. These pupils are not characterized by absence of the various important types of techniques required, but by low-level performance in them.

A second type of difficulty lies in the development of some of the intermediate-level specialized techniques without the others. The pupil in this case may be characterized by a lopsidedness in his development. For example, studies by Eva and Elden Bond¹ revealed the characteristics of such a course of development. They found some pupils who could skim very well and read to get the general significance of materials, or in other superficial ways, at a high rate of speed who would tend to read everything, even highly complex and intricate materials in mathematics and sciences, at approximately the same speed. These pupils tend to be handicapped in the subjects, such as mathematics and science, in which slower, more thoroughgoing analytical comprehension is required. Other children appeared to have perfected during the intermediate period the techniques of slow, thoroughgoing analysis but had failed to

¹ Bond, Eva, *Reading and Ninth Grade Achievement*, Teachers College Contributions to Education No. 756, Teachers College, Columbia University, New York, 1938.

Bond, Elden A., *Tenth Grade Abilities and Achievement*, Teachers College Contributions to Education No. 813, Teachers College, Columbia University, New York, 1940.

acquire certain other, more rapid, types of comprehension. These pupils tended to read even light fiction at a slow, labored pace, with unnecessary thoroughness of comprehension. They were handicapped in school and elsewhere in reading the lighter forms of literary materials, or in rapidly surveying more substantial content. Still other pupils read everything at a moderate rate.

The intermediate period, then, is one in which normal growth is characterized by a differentiation of reading techniques and facility in utilizing for each reading purpose the specialized technique most suited to it. It is a period in which differentiation and versatility are major objectives.

The Mature Reading Stage

The average pupil is capable of making further advances in reading techniques after he has completed the six grades of elementary school. Further advances consist in gradual improvement in efficiency, increased skill in word recognition, in working out the pronunciation and meaning of new words, in recognizing words during reading on the basis of increasingly superficial clues, better phrasing and organization, higher speed, and greater flexibility. Progress is made, furthermore, in greater perfection and refinement of each of the many types of reading comprehension. The first page in the newspaper can be skimmed and the gist of it secured with greater speed and efficiency. The technique of studying a high-school or college textbook may be improved. Skills may be organized more effectively for reading a wider variety of materials, such as technical materials, including graphs, diagrams, formulas, maps, abbreviations, and a great variety of types of content found in trade journals, magazines, encyclopedias, scientific summaries, business reports, balance sheets, and the like. In most of these cases the reading abilities are not precisely new, but rather they represent combinations or refinements of techniques of the general types typically acquired in various degrees in the intermediate grades. In this most advanced stage the reader becomes more versatile. He is able to shift his speed and to modify his technique more quickly and to

References

adjust it more precisely to various reading purposes and to different types of reading matter.

As he becomes more proficient, the pupil can give more of his attention to thinking about, evaluating, comparing, organizing, or otherwise using the content during the actual process of reading. All these abilities, however, represent increased precision, adaptability, and refinements rather than newly developed reading skills.

References

Most of the texts listed in Appendix 1 deal with the character and growth of reading ability. *The Teaching of Reading: A Second Report*, by the Committee on Reading of the National Society for the Study of Education, Public School Publishing Company, Bloomington, Ill., 1937, includes an important discussion of reading stages.

Exercises

1. Name the stages of reading development discussed in this chapter.
2. At what points in the development of reading ability may the inception of disability occur?
3. What activities of infancy and early childhood are contributory to later reading skills?
4. What programs, if any, are being used in a school system familiar to you to develop "reading readiness"?
5. What are the characteristics of the average child's approach to words during the first month or two of reading?
6. Why should new words always be introduced in specially arranged context during the earliest reading stages?
7. What is likely to be the child's earliest procedure in attempting to identify unfamiliar words?
8. Discuss the place of "word-by-word" reading in the development of reading skill. At what stage should it be superseded by reading in "thought units"?
9. At what point in reading progress may supplementary materials be introduced?
10. What is meant by "inner speech"?
11. Why is ability to discover and combine syllables important?

The Nature and Development of Reading Abilities

12. What conclusions for the teaching of reading may be drawn from Dr. Dorris Lee's study?
13. On what phonetic techniques does improvement in speed of reading depend? Name several school subjects taught in the intermediate grades that require ability to read rapidly. Name several that require ability to read thoroughly and comparatively slowly.
14. Over how long a period may reading skills be improved?

chapter 3 A Brief Sketch of a Program of Testing and Diagnosis

It is the purpose of this chapter to describe briefly the various group and individual tests developed by the author for diagnosing reading abilities and difficulties in the elementary school, and to provide a general sketch of the various tests and instruments available for measuring ability and diagnosing difficulties. It is important for the teacher of any one grade to have at least some familiarity with the tests and devices used in other grades. In any one class a teacher may have exceptional pupils similar to the typical children in almost any other elementary-school grade and she should therefore know something about the methods used at all elementary-grade levels.

The table on page 42 gives the names and the characteristics of several tests and the grades for which each is especially designed. It will be noted that in several of the grades a number of different tests may be employed. In these cases choice of the test should be made on the basis of the particular purpose the teacher has in mind, the

TABLE I GRADE PLACEMENT OF THE GATES READING TESTS

Test	Grade											
	Kdg	1	2	3	4	5	6	7	8	9	10	11
	L	H	L	H	L	H	L	H	L	H	L	H
Group Tests:												
<i>Gates Reading Readiness Tests</i> , 1 form	—	×										
An 8-page booklet containing the following subtests:												
1. Picture Directions; 2. Word Matching; 3. Word-Card Matching; 4. Rhyming; 5. Reading Letters and Numbers. Also some oral sections.												
<i>Gates Primary Reading Tests</i> , 3 forms		×	×									
Three separate tests:												
Type I Word Recognition												
Type II Sentence Reading												
Type III Paragraph Reading												
<i>Gates Advanced Primary Reading Tests</i> , 3 forms			×	×	×							
Two separate tests:												
Type I Word Recognition												
Type II Paragraph Reading												
<i>Gates Basic Reading Tests</i> , 4 forms				×	×	×	×	×	×	×	×	×
Four separate tests:												
Type A General Significance												
Type B Outcome of Events												
Type C Following Directions												
Type D Reading for Details												
<i>Gates Reading Survey</i> , 3-12, 2 forms												
Each booklet includes tests of (1) speed, (2) accuracy, (3) comprehension in reading, and (4) vocabulary.												
<i>Gates Reading Diagnostic Tests</i> , 2 forms												
Individual diagnostic tests:												
A set of diagnostic test cards and a 12-page Pupil's Record Booklet												

* L represents the lower or first half of the grade year. H represents the higher or second half of the grade year.

The Gates Reading Readiness Tests

general level of reading ability in the class, and other factors. Suggestions which may be of use in arriving at a choice will be given during the discussion of the several types of tests.

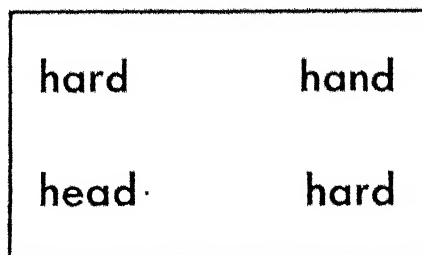
The Gates Reading Readiness Tests

The *Gates Reading Readiness Tests* consist of an eight-page booklet which contains all the materials to be put in the hands of the pupils. The four major tests are group tests and a fifth test, Reading Letters and Numbers, which is optional, must be given to the pupils individually. Following is a brief description of the four main tests.

Test 1. Picture Directions. This test uses three pictures printed in the test booklet. The first is a full-page line drawing of a farm scene, the second a half-page drawing of a town scene, and third a half-page drawing of the interior of a general merchandise store. To conduct the test the examiner makes oral statements about some situation or objects in the picture and requests the pupil to carry out certain instructions by making crosses or other simple marks on the picture. A typical direction: "There are a dog and some ducks in the picture. The ducks are in the brook. Draw a circle around the dog and put a cross on every duck. Be sure to put a cross on every one of the ducks." This test measures a number of abilities of importance in the beginning stage of reading, among them (*a*) the ability to listen to what the examiner or teacher is saying, (*b*) ability to understand what is said, (*c*) ability to remember what is said for a short time, (*d*) ability to grasp and make use of various important everyday words and concepts concerning the country, the town, and the store, (*e*) ability to interpret illustrations, such as are found in beginning books, (*f*) ability to employ all the above in executing directions. This test undoubtedly measures to a considerable extent also the pupil's general verbal intelligence and aptitude.

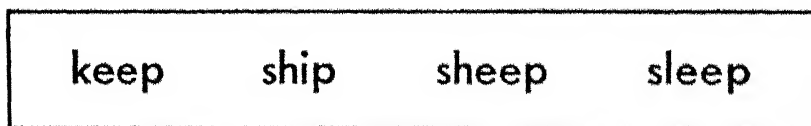
The test really provides a measure of an array of abilities similar to those which would be employed in a typical group oral reading lesson in school.

Test 2. Word Matching. This test consists of eighteen word-matching exercises. The following is an item of about typical difficulty.



The child is to draw a line connecting the two words which are alike. This test measures the extent of a pupil's familiarity with printed words. This reveals differences in familiarity with words among children who are unable to read or recognize any at all. In general, it is designed to reveal the status of the pupil's word perception knowledge and skill at the lower levels.

Test 3. The Word-Card Matching Test. This is another test of status in word perception. In this test the examiner conducts a form of class card or "flash card" study exercise. She shows to the group a card with the word printed on it in large bulletin-board-sized letters for five seconds. The pupil then turns to his test booklet and looks at an exercise of the following type:



He tries to find among the four words the one which was presented on the large card. This test, like tests 1 and 2, is a test of a pupil's success in an actual schoolroom-type learning situation. It reflects the results of his previous learnings, previous experiences with words in large and small type, and gauges his ability to profit from opportunities to learn new words.

The Gates Reading Readiness Tests

Test 4. Rhyming. In Test 4 no printed or visible words are used, only the sounds. It measures roughly the extent to which he has become acquainted with word sound characteristics as a result of his previous experiences with rhymes, jingles, or songs. In giving this test the examiner, after a preliminary explanation of its purpose, pronounces a word, such as *big*, after the pupils have been given the oral names to apply to the pictures of each of four objects in the test booklet. For example, in this case the first is a picture of a flag, second a picture of a pig, third a man, fourth a box. The pupil is to mark the picture the name of which sounds most like or rhymes with *big*, in this case, the picture of a pig.

Test 5. Optional. This test consists merely in asking the pupil to read or name the letters of the alphabet which are printed on the last page of the booklet, first in capital letters and second in lower-case letters, and also the numbers from 0 to 9 inclusive. It must be given individually. Its value depends upon the fact that familiarity with the letters is a rather good index of the child's early experiences with printed materials of all sorts. The merit of the test does not lie in the fact that merely "knowing" the letters contributes greatly to learning to read, but rather in the fact that knowledge of the letters in general correlates highly with other results of experiences with printed materials.

The manual accompanying the *Gates Reading Readiness Tests* gives full directions for administering, scoring, and using the results. The manual provides norms for determining a pupil's relative position in each of the abilities measured. These scores are useful in revealing the pupil's strengths or weaknesses in particular areas and thereby in suggesting the most needed types of instruction. For example, if the pupil gets a relatively high score in Test 2, the Word Recognition Test, the teacher is informed that she need take no particularly strenuous measures to promote his welfare in that area. If the same child should be noticeably low in the Rhyming Test (Test 4) she would be warned that it is advisable to provide this pupil with unusually careful guidance, instruction, and extensive opportunities to develop greater familiarity with the sound characteristics of words.

The manual describes the method of obtaining a composite or total score for use first in deciding how advanced a pupil is in readiness to learn to read in general and, second, predicting how successful and rapid his progress is likely to be. The "composite score" is simply the average of the scores of each of the several tests. The manual gives a discussion of the significance of the different scores ranging from the lowest to the highest likely to be found in the first grade. The test is designed to help the teacher determine the instructional needs of her pupil in some detail and the time at which it is advisable to introduce the pupil to the actual reading program.

Time to Give the Tests. The *Gates Reading Readiness Tests* were designed primarily for use in the first grade. Typically the group of tests is given to the pupils after they have been in school two weeks, a period which enables them to get oriented to the life in this grade. It may, however, be given at other times. For example, it is sometimes given in the kindergarten as a means of determining at an earlier stage the pupil's abilities in order more effectively to orient instruction toward the development of reading readiness. It is indeed sometimes used in the kindergarten as a general all-round measure of scholastic ability and simultaneously for analyzing the pupils' needs for help in cultivating reading readiness along particular lines before the first grade is reached.

The more common practice is to give the tests in the third, fourth, or fifth week of the first grade. The results are then studied and the work of the pupils in the grade organized in the light of this analysis. Although only one form of the readiness tests is provided it may be repeated after an interval of a month or more. The teacher may, for example, have discovered on the basis of the first test which children are almost certainly well advanced in reading readiness, which are seriously backward, and which are in the doubtful area. She may repeat the test for the doubtful cases after a few weeks of further instruction for the purpose of determining how much they have advanced in general and to what extent they have profited along particular lines. Children who are still not ready may be tested again at a later period.

The Gates Primary Reading Tests

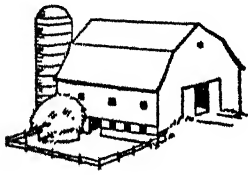
Further discussions of the use of the reading readiness tests and of remedial instruction organized in the light of the test results will be given in Chap. 6.

The Gates Primary Reading Tests

The *Gates Primary Reading Tests* were developed for measuring reading attainments at the lowest levels. These tests are used in Grade 1 and up until about the middle of the second in a class of average ability. For slower pupils they may be used in the middle and even later in the second grade, but for average and better pupils the *Gates Advanced Primary Tests* are more suitable for use in the latter half of the second grade and later.

The *Gates Primary Reading Tests* include three separate tests designed to be used as a team, each test measuring a separate aspect of reading ability, namely, word recognition, sentence comprehension, and paragraph comprehension.

Type 1. Word Recognition. This test was developed to determine the ability to read or recognize words representative of the primary grade vocabulary. Each test consists of units of the following type:





	dark	corn
	barn	ball

The pupil is to get the idea from the picture and to find the word which goes with it. The first exercises are composed of the easiest and most commonly used words arranged in groups in which the resemblances are not especially marked, and the items vary from this level to the exercises containing less familiar primary words arranged in groups in which the task of selection is more difficult,


Brief Sketch of a Program of Testing and Diagnosis

as, for example, such a series as *comb, camp, come, lamb; cherry, geese, cheese, change*. The test measures the degree to which the pupil can identify with reasonable accuracy representative primary-grade words.

Type 2. Sentence Reading. This test measures ability to read and understand sentences of increasing length and complexity. There are forty-five sentences in the test, which begins with a sentence such as "*The girl eats*" and ends with one such as "*This is a plain cotton handkerchief.*" An example of a test exercise is reproduced below.

Mother is writing a letter. I				
This mouse is little. II				
The snow is falling. III				

Type 3. Paragraph Reading. This test consists of a series of paragraphs beginning with relatively simple ones and extending to quite difficult ones. One of the more difficult exercises is reproduced below:


22. Mother must put these five things into her cake. She says, "I have put in sugar, butter, three eggs, and some milk." One more thing must go into the cake. Make an X on it.

The Gates Advanced Primary Reading Test

This test measures ability to read paragraphs with full and rather exact understanding of the whole. To get only a word or a phrase here and there or to get only a whole sentence or two is insufficient. The pupil must grasp clearly the whole thought if he is to execute the directions successfully. The test measures the pupil's ability to comprehend typical paragraph materials with a fairly high degree of accuracy and fullness.

It should be pointed out that none of the tests in the Primary series measures speed or rate of reading. Tests of rate of reading will be introduced for higher grade levels. These tests are believed to measure the three most important aspects of reading in the beginning stages. These are all group tests. The time allowance for Type 1 and Type 2 is fifteen minutes, and for Type 3, twenty minutes. A briefer survey may be obtained by giving Type 1, Word Recognition, and Type 3, Paragraph Reading, only.

The Gates Advanced Primary Reading Test

The *Gates Advanced Primary Reading Tests* consist of two tests, Type 1, Word Recognition, and Type 2, Paragraph Reading. Type 1 of the Advanced Primary series is similar to Type 1 of the Primary series. It is designed to measure the same ability and differs only by reaching up to considerably higher levels of difficulty and thus being adequate to measure the ablest pupils in Grades 2 and 3. In fact, on Type 1 a perfect score represents a reading grade of 7.0, that is, an ability equal to that of the average pupil at the beginning of the seventh grade. Type 2, the paragraph reading test of the Advanced Primary series, measures the same kind of ability as does the paragraph reading test (Type 3) of the Primary series, except that it goes to much higher levels of difficulty in order to measure the ablest pupils in Grades 2 and 3. A perfect or practically perfect score on this test represents in fact seventh-grade reading ability. An exercise from Type 1 appears on page 50, with one from Type 2 below it on the same page.

The *Gates Advanced Primary Reading Tests* are group tests. The time limit for the Type 1, Word Recognition, is fifteen minutes,

and for Type 2, Paragraph Reading, twenty-five minutes. Although typically used as group tests in the second half of the second grade and during the third grade these tests may be given profitably to abler readers in the first half of the second grade or to retarded



secrecy

seasick

sexton

seashore



18. The white, glittering stone that you see in a mother's ring is a diamond. The best diamonds are found in Africa. They are mined like coal and must be polished. Draw a line around the man who is polishing a diamond. Put an X on the name of the place where it was found.

readers in the fourth and higher grades. Pupils who secure perfect or nearly perfect scores on the *Gates Primary Reading Tests* in the first or second grade, or who get substantially zero scores on the *Gates Basic Reading Tests* or the *Gates Survey Tests* or other tests in later grades, should be retested with the Advanced Primary Tests. It should be noted, however, that the Advanced Primary Tests, like the Primary Tests, do not include measures of speed of reading. The *Gates Reading Survey*, discussed below, does provide such tests.

The Gates Basic Reading Tests

The *Gates Basic Reading Tests* comprise four individual tests, each of which is designed to measure a specialized type of reading ability. These tests are designed to be used as a team in order to enable the teacher to discover the relative attainments along the different specialized lines of reading. Any one test, however, may be given alone. All are group tests and each requires six minutes or eight minutes of time. The longer times were devised for the typical third- or fourth-grade classes and the shorter for the fifth or higher grades. The four tests may be briefly described as follows:

What Each Test in the Team Measures

Type A. Reading to Appreciate General Significance is designed to measure an individual's skill in reading merely to get an accurate general impression from the passage. A person may grasp the general significance of the material without full analysis or recall of all details. This test closely approximates rather easygoing reading of the sort commonly exercised by adults in reading newspapers, fiction, popular science, and the like. Comprehension is measured by the simple device of underlining a word. A sample exercise from this test is given at the top of page 52.

Type B. Reading to Predict the Outcome of Given Events requires, like Type A, a grasp of the general significance of the passage but it also requires a special type of analysis of the facts given in order to predict which of several possible events will be most likely to happen next. It is here necessary not only to interpret the passage as a whole but also to appraise certain special implications, to go beyond a mere grasp of events given. Type B is more like Type A than other tests in the series but it requires subtle skills distinct from those employed in Type A. Type B is, for the average pupil, somewhat harder than A; the reading is likely to be done more slowly and carefully and the percentage of correct interpretations is typically lower than in Type A. The second of the two exercises on the next page is an example of Type B.

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9. No one can tell where lightning is going to strike. It usually prefers something tall like a big tree. It runs down the trunk and into the ground. It is not a good idea to stand under a tree in a bad storm. Many cattle and horses are killed every year because they seek shelter under a tree during a severe storm. It is better to risk the open road or field.

Draw a line under the word that tells what to avoid in case of lightning.

houses roads trees barns cattle

19. The old man leaned out of the cab of his engine. It was his last run. He was retiring after forty years of service. Forty years and never an accident! He heard the signal and started his train. He decided to be very careful tonight. He slowed down and peered ahead when he approached the dangerous curve. Suddenly he saw an automobile across the tracks!

The train smashed into the car.

The old man had his first accident.

The train slowed down just in time.

The train jumped the track at the curve.

Type C. Reading to Understand Precise Directions was selected to measure rigid, careful, exacting reading. The type of reading adequate for Type A, that is, the type adequate to yield a good general impression of the material, would be quite inadequate for the purpose of Type C. The directions themselves are not especially

What Each Test in the Team Measures

difficult; average third-grade children, working with care, can understand and execute them. The difficulties arise from the exact nature of the reading required. The test measures ability to read with exactness and precision, to select accurately relevant details while subordinating other facts, however interesting, and, finally, to retain without distortion the precise directions to be executed. This type of rigid reading requires very different techniques from those which are employed in Type A and in Type B. A sample exercise from this test is given below.



20. Some horses are a bright bay. Some are black, white, or gray. A few are dark strawberry red, and some are brown with cream-colored tails. Some ponies are spotted, like those used by the Indians. Draw a line under a pony that an Indian might have owned.

Type D. Reading to Note Details, like Type C, requires recognition and analysis of many details in a passage but it demands a less definitely organized or integrated grasp and recall of the elements of the paragraphs. This test differs from A and B in that it requires not a grasp of some one general characteristic or one subtle implication of the whole passage but an independent treatment of three different details or aspects of the passage. It measures ability to comprehend several points in a paragraph during one reading. Pupils who must reread the paragraphs several times—for example, once for each detail—should be taught how to comprehend more points in a single reading. A sample exercise from this test is given at the top of the following page.

5. If you live in a factory town, look at the rows of tall chimneys against the sky from the point of view of health, and then you won't mind them so much. Part of the coal burned goes up in smoke. Rather than have this smoke pouring in your windows from a low chimney, the factory sends it as high as possible into the air by way of a tall chimney.

On what do you see very tall chimneys?

factories churches houses parks

From what point of view should they be seen?

beauty health wealth time

A tall chimney helps to keep smoke from your -

stove clouds sunlight windows

The *Gates Basic Reading Tests* consist of units of equal difficulty. The time limit is relatively short and these tests therefore measure the speed of reading. For each of the four tests the following scores are obtained:

1. *The number of test units attempted.* The number of test units attempted is determined by observing the number of exercises which have been marked. The manual provides a table for interpreting scores based merely on the number of exercises attempted. This score indicates how rapidly the pupil read the material during the test.
2. *The number of test items correct.* The second score is the number of exercises which were correctly executed. This score provides the best measure of the speed of really effective reading. When this score is used, of course, the pupil is given no credit for reading an exercise unless he correctly comprehended it. The test is really a measure of how many items the pupil comprehended correctly. It is the best score of general all-round reading ability.

The Gates Reading Survey

3. *The percentage of accuracy.* This score is merely the percentage which score 2, the number correct, is of score 1, the number attempted. The manual provides a table for interpreting these scores. Taking into account the pupil's grade and general reading ability, the table enables the teacher to translate the percentage of accuracy into a general rating of accuracy on a five-point scale: (1) very high, (2) high, (3) medium, (4) low, (5) very low.

On each of the types of reading, then, one may determine a rating of the speed at which the pupil reads, irrespective of comprehension, the amount he comprehends in a given time correctly, and the relative fullness or accuracy of the pupil's reading.

The Gates Reading Survey

The *Gates Reading Survey* is issued in the form of a booklet which includes all the test materials to place in the pupil's hands. The test may be used in the average classes beginning at about the middle of the third grade and in later grades. For somewhat more advanced groups the test may be used at the beginning of the third grade. The *Gates Reading Survey* includes measures of speed and accuracy of reading, level of comprehension, and vocabulary.

The Speed and Accuracy of Reading Test. This test consists of sixty-four items of approximately the same difficulty as the following:

36. The oriole hangs her nest on the limb of a tree.
The wind can rock the baby birds to sleep. What do
you think this nest is like?

rock

cradle

leaf

chair

The type of comprehension problems varies and this test on the whole represents abilities similar to those measured by Test Type A

in the *Gates Basic Reading Tests*. Norms are provided which interpret the rate at which pupils read items of this type and the accuracy of their comprehension.

Level of Comprehension. The level of comprehension test consists of a series of thirty-five paragraphs beginning with relatively easy ones and continuing to paragraphs so difficult as to challenge the ability of high-school students. Examples of a fairly easy and a fairly difficult exercise from the test are reproduced below.

4. Father made a playhouse for the boys. He built it of wood. He cut four windows and a door in it. "Now," he said, "we need____A____for the windows and ____B____for the floor."

A. glass food trees rocks cement

B. lace straw blankets boards glass

33. Some persons believe that profit-sharing draws the employers and employees closer together when the incomes of both depend upon the amount of the profits. It speeds up the output of the worker and encourages him to take a greater interest in the____A____. An addition to his____B____enables him to achieve a higher standard of living. Above all, a friendly atmosphere ____C____the likelihood of strikes and lockouts.

A. fun concerts concern vacations speed

B. salary house work time output

C. increases hardens softens lessens gives

The time provided for this test is so liberal that the influence of speed of reading is practically eliminated. Only an excessively slow

Use of Grade and Age Scores

reader could profitably use any more time than is given. The test really determines how difficult and complex a passage a pupil can comprehend. This test, in other words, is clearly a supplement to those included in the *Basic Reading Tests*, which does not provide an appraisal of this phase of reading. As will be pointed out later, knowing approximately the level of power of a pupil's comprehension is exceedingly useful in guiding his instruction and in helping him find the most useful kinds of material for recreational and other reading activities.

Vocabulary Test. The vocabulary test consists of eighty-five test items, samples of which are reproduced below.

1. red	man	bird	color	song	go
44. authentic	beautiful	happy	horrible	true	better
84. inundate	smother	curse	mash	flood	repair

The pupil's task is to read the first word, which is the key word, and then select from the following five the word which means most nearly the same thing. The words range from those likely to be known by children in the first grade to very difficult words, many of which would not be known by average pupils in high school. The purpose of the test is to measure the reading vocabulary of pupils in the third and later grades.

It should be noted that this test is designed to serve the same general purpose as the Word Recognition Test in the *Gates Primary* and *Advanced Primary Reading Tests*. Thus is provided a test of reading vocabulary or word recognition at any point from early in the first grade up to and through the upper elementary grades. In fact, the Gates Survey Test may be used in grades up to and through the tenth.

Use of Grade and Age Scores

With the exception of the *Gates Reading Readiness Tests* all the group tests have been provided with tables of norms which enable

the examiner to translate the raw or actual scores made by each pupil into a grade score or age score. The following is a section of Table II provided for converting raw scores for test Type 2, Paragraph Reading Test, of the *Gates Advanced Primary Reading Test*, into reading grades or reading ages.

TABLE II GRADE AND AGE NORMS FOR TYPE 2, PARAGRAPH READING

TEST SCORE	READING GRADE	READING AGE	TEST SCORE	READING GRADE	READING AGE
0.....	1.7	7-0	15.....	3.0	8 6
1.....	1.7	7-0	16.....	3 1	8 7
2.....	1.8	7 1	17.....	3.2	8 8
3.....	1.8	7 1	18.....	3.3	8 9
4.....	1.9	7 2	19.....	3.5	9 0
5.....	1.9	7 2	20.....	3.7	9 3
6.....	2.0	7 3	21.....	3 8	9 4
7.....	2.1	7 5	22.....	4.0	9 8
8.....	2.2	7 6	23.....	4.2	9 10
9.....	2.3	7 8	24.....	4.4	10 1
10.....	2.4	7 9	25.....	4.8	10 7
11.....	2.5	7 10	26.....	5.4	11 2
12.....	2.6	8 0	27.....	6.0	11 10
13.....	2.8	8 3	28.....	6.4	12 2
14.....	2.9	8-5	29.....	6.8	12 7
			30.....	7.4	13 1
			31.....	7.8	13 7
			32.....	8.2	13 11

The examiner first scores the pupil's test. In this case she gives him a credit of 1 for each exercise correct. These credits are then summed up to provide the total raw or test score. This score is then looked up in the first column. Let us assume that the pupil's test score was 6. The table shows that this test score of 6 gives a reading grade score of 2.0 and a reading age score of 7-3, or seven years and three months.

Percentile Scores

The reading grade score of 2.0 corresponds to the ability of the average child at the very beginning of the second grade. Thus, if the pupil earned a reading grade score of 2.0 he is equal in his ability to interpret paragraphs to the average child at the time he is beginning the second grade. If this pupil had made a test score of 11, he would have gotten a grade score of 2.5, which corresponds to the ability of the average child at the middle of the second grade. A test score of 15 corresponds to the average reading ability of the average child at the beginning of the third grade. Thus, by using the grade score the teacher can size up the pupil in comparison with the average reading abilities represented by different grade positions. Most teachers find this the most useful form in which to think of a child's reading ability.

The tables for all the Gates silent reading tests provide also norms for the reading age score. Thus, if our pupil got six exercises correct his reading age can be read from the table; it is seven years and three months; whereas a score of 11 corresponds to seven years and ten months. These two kinds of scores are really interchangeable in that the reading age of seven years and three months, for example, will in all the tables be equivalent to the reading grade of 2.0. The reading age scores are provided for convenience in comparing the pupil's reading ability with scores from certain other tests frequently expressed in terms of years. The examiner may use either the reading grade or the reading age scores, as he prefers. For work with teachers, the use of the reading grade has become more common than the use of the reading age.

Percentile Scores

The age and grade scores are used with all the group tests except the reading readiness tests. For the reading readiness tests the raw or test scores are converted into percentile scores. The percentile scores are based upon the results of tests given to a large group of children in the process of standardizing the test scores. This group may be called the "standard" group. Thus any pupil's score may be seen in comparison with the scores obtained by the standard group. A per-

centile score of 100 is the highest score obtained by any child in the standard group. The percentile score of 75 is the score equaled or exceeded by the top quarter of the standard group. A percentile score of 50 is the middle or the median score of the group. A percentile score of 25 is one which 75 per cent of these children equaled or exceeded, and a percentile score of 0 is the lowest score obtained in the group. The raw score of any particular child, then, is converted into a percentile score. If in Test 1 a pupil gets a percentile score of 50 it means that he is exactly at the middle of the representative or "standard" group. If the percentile score is 90 he is close to the top, being exceeded only by about 10 per cent of the pupils in the standard group.

Uses Made of the Group Reading Tests

The group reading test provides the easiest and quickest way of getting objective evidence concerning the reading ability and needs of a whole class of pupils. The group tests also provide information about the abilities and needs of individual pupils. Indeed, each one of the batteries of tests is in some degree diagnostic. The most common procedure consists in giving one or more of the batteries of group tests to a class as a whole. A study of the results of this test should be of value in getting acquainted with the class. It should form, in fact, the first step in the diagnosis of the abilities and difficulties of the individual pupils in the class. The more detailed and time-consuming individual diagnosis and observations would be provided, then, not for the group as a whole indiscriminately, but to meet certain individual needs which have been revealed reasonably clearly in the results of the group tests.

A table showing the scores obtained by all the pupils in a third-grade class who have been given the *Gates Advanced Primary Reading Tests* is reproduced on page 62. This sample table gives the records of thirty-two pupils. At the time of the test the grade position of this class was 3.7. That is to say, they had completed about seven-tenths of the year's work in the third grade and were about three-tenths of a grade below the beginning of the fourth grade.

Uses Made of the Group Reading Tests

The figure 3.7, which represents the grade status at the time of the test, is the one with which the pupil's actual reading grades may be compared.

The table gives first a letter to identify the pupil; second, the pupil's age in years and months; third, the pupil's average reading grade. This score is simply the arithmetic average of his grade score in tests Type 1, Word Recognition, and Type 2, Paragraph Reading. Next is the grade score in word recognition, and finally the grade score in paragraph reading. Certain average scores are given at the bottom of the table.

The mean of the average grade scores for the class as a whole is 4.37, the average of the grade scores for Type 1, Word Recognition, is 4.28, and for Type 2, Paragraph Reading, 4.5. Since the grade status of the class was 3.7, it is apparent that, on the whole, the class is superior to the average. In the composite reading grade average the class exceeds the norm in word recognition by about half a grade and by an even greater amount, approximately eight-tenths of a grade, in paragraph reading.

Whether these high scores should be regarded as a notable achievement could be estimated only when the class is compared with the hypothetical average class in other respects. Is the average intelligence of the class as a whole greater or less than, or about the same as, that in the typical American class? Are the materials and facilities above or below the average? Is more time spent on reading in this class than in the average class? The reading tests themselves, of course, do not answer these questions. They only show fairly reliably what the actual reading abilities are. To evaluate the achievement of the class as a whole various additional information is necessary, as will be pointed out later.

It was noted above that the average reading grade for the class in paragraph reading, 4.5, is slightly higher than the grade score for word recognition, 4.28. Data in the manual accompanying these tests would enable the teacher to estimate the reliability of this difference. Although the difference is not very large, it suggests that the pupils are somewhat better in utilizing all those skills and abilities involved in comprehension of connected material than they are

Brief Sketch of a Program of Testing and Diagnosis

RECORDS OF PUPILS IN A 3-B CLASS—GRADE STATUS 3.7 AT THE TIME OF TEST

PUPIL	AGE	AVERAGE READING GRADE	TYPE 1	TYPE 2
			WORD RECOGNITION READING GRADE	PARAGRAPH READING READING GRADE
A	8-2	6.9	7.0	6.8
B	8-9	6.3	5.8	6.8
C	8-11	5.35	4.3	6.4
D	8-6	5.9	5.8	6.0
E	7-6	5.5	5.0	6.0
F	8.5	5.9	5.8	6.0
G	8.1	4.7	3.4	6.0
H	8.0	5.4	4.8	6.0
I	8-3	6.25	6.5	6.0
J	8.7	4.75	4.1	5.4
K	8-0	5.95	6.5	5.4
L	8.2	5.6	5.8	5.4
M	8.8	5.15	5.5	4.8
N	8.3	5.35	6.3	4.4
O	9-10	4.7	5.0	4.4
P	9-10	4.7	5.0	4.4
Q	9-5	3.7	3.4	4.0
R	9-2	3.5	3.0	4.0
S	9-3	4.5	5.0	4.0
T	9-8	3.75	3.5	4.0
U	8-2	3.7	3.4	4.0
V	7-10	3.9	4.1	3.7
W	9-0	3.3	2.9	3.7
X	10-4	3.35	3.4	3.3
Y	9-2	3.2	3.1	3.3
Z	11-4	2.9	2.6	3.2
AA	7-11	2.75	2.4	3.1
BB	7-11	3.05	3.2	2.9
CC	8-0	2.7	2.5	2.9
DD	8-8	2.65	2.5	2.8
EE	9-5	2.65	2.7	2.6
FF	8-0	2.65	2.7	2.6
Av.		4.37	4.28	4.50

Uses Made of the Group Reading Tests

in learning and recognizing the individual words and their meanings.

So much for the class as a whole. Now let us look over the individuals. According to the manual accompanying this test, a deviation of one-half of a grade lower than the actual grade position, namely, 3.7, should be considered as significant in the case of the score of a single child. A smaller one should not be regarded as certainly significant, due to the fact that all test scores involve a certain degree of error. We may consider, then, that any score of 3.1 or lower may indicate some really significant degree of retardation in reading. Pupils Z, AA, BB, CC, DD, EE, and FF get an average grade score of 3.1 or lower, and of these all except Z and BB are below 3.1 in both tests.

These seven lowest pupils, with the exception of Z, are one full grade or more below their grade status in the composite reading score. They are really doing late second-grade reading rather than advanced third-grade reading. This retardation is practically significant and it justifies very careful diagnosis of its sources and a deliberate and careful search for possible ways of securing improvement.

From the point of view of the extent to which they are behind their grade level, other pupils in the class should be receiving some special attention, if not a more thoroughgoing diagnosis. Pupils W, X, and Y have rather low composite scores. Note, for example, that pupil Y, with a word-recognition score of 3.1 and a paragraph-reading score of 3.3, is in the neighborhood of one-half grade behind the norm. In paragraph reading he is seven-tenths of a grade below the average of his particular class. Here is a pupil who has only moderate reading ability and lest this degree of retardation become more and more exaggerated in the future, it should be investigated at once.

There is a possibility that even some of the pupils who are reading "up to the norm" or even above it, are not such good readers as they might be with optimum instruction. Some of the pupils reading with average ability may, in fact, be decidedly superior in general intellectual endowment or general verbal and linguistic aptitude. If the results of intelligence tests or verbal aptitude tests were

available, reasons for examining certain children more thoroughly might be found. For example, if pupil Q, whose average reading grade is 3.7, almost exactly the norm, should prove to have general intellectual ability corresponding to grade 4.7, the teacher might properly feel some concern about finding ways to make it possible for him to read on a more advanced level. The average pupil of this degree of intellectual ability would show a reading grade score about equal to his mental grade score or nearly a year in advance of that shown by this pupil. There must be some reason for this pupil's reading less competently than the average child of similar intellectual endowment. In a sense, retardation of reading in comparison with the general intelligence-test status is quite as important a reason for conducting further diagnostic study as retardation in comparison with a pupil's actual grade status. The intellectual status, in fact, is a much more permanent and less accidental affair than the pupil's grade placement.

The reading grade of each pupil in word recognition may be compared with the corresponding grade in paragraph reading. A few rather conspicuous differences appear. Pupil B gets about a full grade higher score in paragraph reading than in word recognition, and pupil C is practically two grades higher in paragraph reading than in word recognition. Pupils C, D, E, G, H, J, and R show superiority in paragraph reading. On the other hand, pupils K, N, and S show the opposite variation. In these cases, the score for word recognition exceeds the score for paragraph reading by a grade or more.

The higher score on paragraph comprehension may have represented the deliberate effort of the teacher to emphasize the understanding of passages more than the development of reading vocabulary. It may, however, represent an emphasis which a teacher is giving without actually realizing it. If this is the emphasis that she believes to be sound, she may follow her present program with greater assurance than would otherwise be true. If it should be the reverse of the emphasis which she desired, she would know that she must reconsider her teaching program. In any case, a reliable difference between the grade scores in the two tests means a departure

The Use of Individual Diagnostic Tests

from the typical or average situation in American schools and therefore merits attention. It should be noted, too, that a number of pupils show a more or less conspicuous superiority in word recognition in comparison with paragraph reading. They are, in comparison with representative American pupils, somewhat lopsided in their development in the opposite direction.

These brief illustrations are given merely to give an introduction to the use of group tests in appraising the reading abilities of a class and of individual pupils. Later chapters will provide more extensive treatment. As suggested above, the results of the group tests indicate the need of more detailed study of certain individuals. For this purpose, the *Gates Reading Diagnostic Tests* were developed.

The Use of Individual Diagnostic Tests

The *Gates Reading Diagnostic Tests* comprise a series or battery of individual tests developed for the purpose of enabling the examiner to explore more fully the characteristics and causes of difficulties in most of the important aspects of reading ability. In this section a brief description of these tests will be given. In the Appendix, the tests are more fully described and full directions for giving and scoring them are provided. The various tables and norms employed in interpreting these tests will also appear in the Appendix. In succeeding chapters the use of the individual diagnostic tests in combination with the group tests in diagnosing particular types of difficulties is explained in detail. The purpose of the description in this chapter is merely to give the reader a general impression of the character of the diagnostic tests and the purposes for which they were developed.

To use the *Gates Reading Diagnostic Tests* three types of material are required: First is the Manual of Directions which appears in the Appendix in this book and which is published separately in convenient form for use in testing by the publishers of the test materials.¹ The second item comprises two sets of four cards, bound

¹ All the materials are published by the Teachers College Bureau of Publications, Teachers College, New York 27, New York.

together, containing all the test material to be presented to the child in visible form. One booklet contains Form I and the other contains Form II, a set of equivalent test materials. Each set of materials may be used repeatedly. For each subject the examiner will need a copy of a sixteen-page Pupil's Record Booklet. This booklet includes a copy of the materials printed in the series of test cards in form suitable for recording the errors, the time, and other data, as well as check lists for recording important characteristics of the performance obtained by analyzing errors or observing the pupil's performance. This booklet also contains the text for various tests which are to be presented orally. For example, in one of the tests the examiner is to give the sounds of separate letters or phonograms in each of a series of words. The pupil listens to the separate sounds and tries to get the actual word by combining or blending these sounds. The test items are printed in the record booklet and the pupil's response is recorded beside them. The test booklet also contains spaces for summarizing diagnoses and recommendations for remedial work, and spaces for recording the results of other tests, such as tests of vision or hearing, items concerning interests, worries, emotional tensions, past school and home history, et cetera. Each Pupil's Record Booklet includes the test and the other materials needed for recording responses to both Form I and Form II. Thus an original diagnostic test and a retest after remediation work, together with various notes, may be recorded in the single booklet and preserved for later study.

In the following sections the tests will be briefly described in the order in which they appear in the set of test cards and in the Pupil's Record Booklet.

The Gates Oral Reading Test. Each form of this test consists of seven paragraphs of increasing difficulty. The first paragraph would be relatively easy reading for the average pupil shortly after entering the second grade, whereas the most difficult one represents approximately an eighth-grade level. In giving the test the proper card is presented to the pupil and he is asked to read the paragraphs one at a time aloud. The examiner notes the time required to read the paragraph and the number of errors. Directions in the manual

The Use of Individual Diagnostic Tests

define what is to be recorded as an error and suggest a method of grouping the errors into several types, such as mispronunciations, omissions, substitutions, insertions, and repetitions. The mispronunciations are classified in several categories.

After this test has been given the total time required to read each paragraph is compared with a table of norms and the examiner can thereby determine whether the pupil reads slower or faster than or at about the same speed as a typical pupil of his grade status. A general score for competence in oral reading may also be determined in the form of a grade score or an age score.

Further diagnostic data may be secured in two ways. The first method depends upon an objective analysis of errors. Various tables for interpreting the number and significance of omissions, repetitions, substitutions, and insertions of words are provided, and in later sections in this book suggestions will be made for the instruction and remedial treatment of those pupils who show such errors in excess. The Oral Reading Test is used also as a means of appraising the pupil's ability to work out the pronunciation and meaning of new words by utilizing context clues and word-form clues. A careful record is kept of all errors, including mispronunciations of words, and special tables are provided for determining the significance of these errors.

Much information may be secured also by observing the pupil's performance as he takes the Oral Reading Test. Not only the rate of reading and the characteristics of expression but also the devices used when the pupil encounters a difficult idea or an unfamiliar word may be observed. With a little practice, for example, the examiner can learn to tell what kind of attack a pupil makes when he encounters an unfamiliar word. He can observe whether the pupil makes a quick guess at the word on the basis of what he estimates to be its meaning and a superficial look at the word, or whether he stops, divides the words into syllables, or tries to translate the individual letters into sounds, or uses other devices. In later sections in this volume suggestions will be offered to aid the examiner in achieving skill in figuring out the nature of the pupil's techniques by observing his oral performance.

The Gates Oral Vocabulary Test. The second test is an Oral Vocabulary Test, each form of which consists of thirty word-meaning identification items ranging from very easy words to difficult ones. For example,

1. A *head* is a part of a coat saw man box.
30. *Polemic* means dispute disaster problem precedent.

The pupil is asked to pick one of the four words which best shows the meaning of the key word. This test is suggested primarily for use in Grade 3 and above, either as a substitute for an individual intelligence test or as a means of providing a basis for comparing a pupil's reading vocabulary with his oral vocabulary.

The Reversals Test. Each form of this test consists of thirty printed words, such as *on*, *bad*, *peek*, which comprise a real word when the letters are seen in reverse order. The pupil is shown the list of words and asked to pronounce them one at a time. A record is kept of the number of errors and the proportion of these which comprise a full reversal, such as reading *saw* instead of *was*, or a partial reversal, such as recording *own* instead of *won*. By means of tables of norms the examiner can determine how the pupil compares with other pupils in his reversal tendency.

Flash Perception Test. The Flash Perception Test is provided to reveal the extent to which a pupil can recognize words and phrases of different lengths in a single quick exposure. The test consists of twenty-six phrases printed on a card beginning with a short, familiar phrase, such as *a boy*, and extending to thought units such as *Park your car here*. In giving this test, a card with a window is provided by means of which the examiner exposes each phrase for one-half of a second. The total score on the tests may be converted into a grade or age score and compared with scores on any of the group tests as well as on all the other diagnostic tests.

Word Perception Flash Presentation Test. This test is given in the same manner as the Phrase Perception Test mentioned above. Instead of phrases, this test employs words, of which there are twenty, beginning with a short, familiar word, such as *so* or *as*, and ending with longer, less familiar words, such as *satisfaction* and

The Use of Individual Diagnostic Tests

superstition. The number of items correctly recognized in the one-half of a second presentation is the raw score, which may be converted into an age or grade score.

Word Perception and Analysis (Untimed Presentation). For this test a series of twenty words varying from easy words to difficult ones, and equivalent in difficulty to the list of words used in the Flash Presentation Test, is provided. The pupil is shown the words one at a time and is allowed to proceed in his own way to work out the recognition and pronunciation of it. He is likely, of course, to get through a detailed analysis many words which he could not recognize and pronounce in the flash presentation. The total score thus obtained may be converted into a grade or age score. For example, the examiner can compare the pupil's ability in working out the recognition and pronunciation of words when plenty of time is offered with his skill in recognizing words "flashed."

It should be noted that in the untimed and the flash presentation of words tests the words are presented in isolation. By comparing the scores in this test with the scores in the Oral Reading Test, and indeed with scores in the group silent reading tests, a good estimate is obtained of the extent to which a pupil successfully uses context clues. For example, if the pupil's grade score on the Oral Reading Test is appreciably higher than his score in either of the tests on isolated words, the probability is that he makes very good use of context clues and is relatively poor when he must depend entirely upon study of the bare word form.

Spelling Test. The next test in the series consists in giving the pupil orally each of a series of twenty words and asking him to spell it. This test is given for the purpose of comparing the pupil's grade score in spelling with his grade score in untimed word recognition, in recognition of words flashed, and in his competence in dealing with words in other tests. Suggestions are given for observing the pupil's methods of analyzing words in spelling. In some instances important clues for the improvement of both reading and spelling are obtained by the use of this test.

The Gates series of standardized reading diagnostic tests includes

two further series both of which are designed for the purpose of analyzing more fully the techniques used in word study, word recognition, and the working out of the recognition and pronunciation of unfamiliar words. The first series consists of *Tests of Visual Perception Techniques* and the second, *Tests of Auditory Techniques*. In the case of many pupils it will be unnecessary to give any of these tests. Often the examiner will get quite satisfactory insight into the pupil's methods of dealing with words by using the tests previously described. Often, in fact, he will not need to use even all of them. In some instances, especially where the difficulties in word perception are quite pronounced, it is helpful to give the more detailed visual perception and auditory perception tests.

Test of Visual Word Perception Techniques. This series includes seven different tests. The first is a test in working out the recognition and pronunciation of words by the technique of syllabication. This test consists of a series of printed nonsense words, such as *immo*, *urloat*, *ayleawa*, which, although nonsense words, are all made up of syllables occurring with high frequency in an elementary-school reading word list. The pupil is shown the words and asked to pronounce them. He is given credit only when he works out a reasonable total sound for each "word" either by immediate recognition or by noting syllables and combining them. He is not given credit if he is observed to translate the individual letters into sounds and then to blend the sounds. His score on this test, which can be converted into a grade or age score, indicates the extent to which he can locate and blend or combine syllables. If he does rather poorly on the test it may be that he does not recognize the syllables or that, having recognized them, he cannot combine them. In this case he is given Test 2, Recognition of Syllables.

Test 2, Recognition of Syllables, consists of a series of syllables which appear with high frequency among children's words, such as *ark*, *un*, *er*, and others. The pupil is asked to look at the syllables and pronounce them. He is given credit if he recognizes them as wholes but not if he has to work them out by naming or sounding the individual letters. If in the recognition of individual syllables he gets

The Use of Individual Diagnostic Tests

a considerably higher grade score than in the preceding test of working out words comprising several syllables, the suggestion is that his difficulty is more in the technique of finding and combining syllables than in a difficulty in recognizing the syllables when they are presented alone.

The third test in the series is a test of recognizing individual phonograms, some of which are not syllables in the usual sense of the word, such as *ba*, *ch*, *oo*. It is given and used in the same manner as the Recognition of Syllables test.

The fourth test in this series is a test of Blending Individual Letter Sounds. In this test the pupil is shown a printed series of letters separated by dashes, such as *k-o*, *p-i-m*, *h-a-r-n*. In this test the pupil is asked to look at the letters, think of their sounds, then combine and blend the sounds into a total word sound. His score, as in the other tests, can be converted into an age or grade score. If his score is rather low, the difficulty may be due to any one of several deficiencies. He may not be able correctly to identify or name the letter. Or even if he can recognize and name the letter, he may not be able to translate it into sounds, or, even if he can think of the proper sounds of individual letters, he may not be able to blend them into a total wordlike sound. To test these possibilities, other tests are provided. The next test, for example, is a test in giving the sounds of the individual letters. In this test a printed letter is shown to him and he is asked to tell what sound corresponds to it. Following this are two tests in recognizing and naming the letters. In the first test he is shown the printed capital letters and asked merely to read or name them one at a time. In the second test he is shown the letters of the alphabet in lower-case form and is asked to read or name them. By giving the three types of tests and comparing the grade scores obtained in each, the examiner can arrive at a diagnosis of the difficulty, whether it is in recognition of the letters or in translating them into sounds one at a time or in combining and blending the sounds.

This completes the series of tests in which the pupil uses actual printed materials—words, nonsense words, syllables. The series is designed to provide an inventory of these several specialized abili-

ties and thereby enable the teacher to ascertain in what specific abilities the pupil is deficient. Further instruction and remedial work may then be set up in the light of her knowledge of the pupil's strengths and weaknesses.

Tests of the Auditory Techniques. Four tests of the auditory techniques involving word recognition and word analysis are provided. The texts for these tests are given in the Pupil's Record Booklet. The first is a test of ability to blend the letter sounds. In this test the examiner gives orally the sounds of the individual letters with a short pause between them. For example, he will give the sound of *m* and follow it after a slight pause with the sound *e*, as they occur in the word *me*. The test progresses to longer words, such as *th-un-d-er*. In each case the pupil is to listen to the sounds as they are given, one at a time, and then to try to combine or blend them and to say the total word, such as *me* and *thunder*.

The second test in this series merely requires the pupil to tell what letters correspond to the individual letter sounds. For example, the examiner makes the sound of *l*, as in *lie*, or *i*, as in *it*, and asks the pupil to tell what letter usually represents that sound. The third test in this group is a test of thinking of words which begin with the same sound as that given in a key word. For example, the examiner says the word *can*, then sounds the initial hard *c* sound, and asks the pupil to give him other words which begin with the same hard *c* sound. The last is a test in thinking of and giving words which end with the same sound as the sample word, that is, words which rhyme with the given word; for example, the examiner pronounces the word *keep*, emphasizes the final sound *cep*, and asks the child to give other words which rhyme with it.

These abilities will be recognized as those mentioned in the preceding chapter as important bases for developing phonetic skill. They are the types of abilities for which various activities are suggested for the prereading and reading readiness program, as well as for later periods. Marked weaknesses in any of these tests represent handicaps in profiting by training in phonetic work and in using the sound components of words in working out the recognition and pronunciation of unfamiliar words. How serious a pupil's weakness

Informal Tests

is in these tests may be estimated by comparing his grade scores in the auditory techniques tests with each other and with the tests in which visual analysis is employed.

This completes the list of tests provided in the Gates reading diagnostic program in objective form. All these tests have been carefully standardized on the same population and tables of norms provided for translating the total raw or test scores into grade and age scores, and, in some instances, other tables are presented for analyzing the significance of particular types of errors. Lest the reader feel somewhat discouraged if he has not formed a very clear idea of how the tests are to be used by reading this chapter, he should be reminded that our purpose here is merely to give a very general impression of the range and purpose of the total testing program. Each of these tests will be taken up for full discussion and explanation in the later chapters.

Informal Tests

The tests described above are those which have been fully standardized and provided with tables of norms for determining grade and age scores and other standard scores in the diagnosis of reading disabilities. Other observations, analyses of difficulties, informal tests, and various diagnostic devices and instruments may also be used. These various methods of diagnosis will not be outlined in this chapter but will be discussed in connection with particular difficulties in the succeeding chapters. The extent to which such tests duplicate, conflict with, or extend the insights obtained from the standardized diagnostic tests will be pointed out.

The tests of various abilities of importance in learning to read, such as tests of vision, hearing, intelligence, and so forth, are discussed in the next chapter. For some of these tests and examinations specific directions and suggestions are provided in Chapter 4 and in the Appendix.

References

More detailed discussions of the tests, and references to the experimental studies on which they are based, are contained in the *Manual of Directions*, prepared by the author for each series of tests, and published by the Bureau of Publications, Teachers College, Columbia University, New York, 27, N. Y. They may be purchased separately. The titles are as follows:

Manual of Directions for the Gates Reading Readiness Tests
Manual of Directions for the Gates Primary Reading Tests
Manual of Directions for the Gates Advanced Primary Reading Tests
Manual of Directions for the Gates Basic Reading Tests
Manual of Directions for the Gates Reading Survey
Manual of Directions for the Gates Reading Diagnostic Tests

Exercises

1. What abilities are measured by the Picture Directions Tests of the *Gates Reading Readiness Tests*? Why is information about these abilities important to the teacher?
2. What skills are measured by the Word Matching Test? What values can you see for the Word-Card-Matching test?
3. What abilities are probably measured by the Rhyming Test? To what extent will experience influence a child's performance on this test?
4. Does Letter and Number Naming measure primarily experience or ability?
5. At what times in the child's school life is it appropriate to give the *Gates Reading Readiness Test*?
6. Name and describe the three parts of the *Gates Primary Reading Test*. What abilities do these tests measure? What weight is given to the importance of speed of reading at this level?
7. At what levels is the Primary Test usually most useful? The Advanced Primary Test? What skills in addition to those measured by the Primary Test are canvassed by the Advanced Primary Test?
8. Name and describe the four subtests of the *Gates Basic Reading Test*. At what levels are they designed to be used? How is an accuracy score obtained for these tests? What are the skills measured by them?

Exercises

9. At what levels may the *Gates Reading Survey* be used? What skill does each subtest measure?
10. What is the relationship between reading age and reading grade? What is meant by a reading age of eight years and five months? A reading grade of 8.5?
11. In which of the Gates reading tests is the norm table expressed in percentiles? Interpret a percentile score of 80.
12. What are the general values of the group reading test in diagnosis?
13. Discuss briefly the advantages of using an oral reading test for diagnosis. What is the primary use of the oral vocabulary test of the *Gates Diagnostic Tests*? Describe the nature and values of the Phrase Perception, Word Perception-Flash Presentation, and Untimed Word Pronunciation tests.
14. What skills are canvassed by the Tests of Visual Word Perception Techniques? The Tests of Auditory Techniques?

chapter 4 A Survey of Intelligence,
Vision, Hearing, and Other
Factors Which Influence
Reading

This chapter is devoted to a consideration of various capacities and functions upon which learning to read depends. A pupil's general intelligence, his linguistic aptitude, his vision and hearing, his general health and vigor, his emotional balance, and various other fundamental characteristics affect his ability to learn to read at every stage from the first lesson to adult life. Retardation or serious deficiencies in any one of these components of a pupil's equipment may seriously interfere with his progress in reading and may limit the level of attainments in reading ability.

The pupil whose intelligence or verbal aptitude is inferior and who also suffers poor vision and hearing will be more seriously handicapped in learning to read than the pupil afflicted by only one de-

General Intelligence and Verbal Aptitude

ficiency. In attempting to determine the ease and speed with which a child will learn to read and the level and quality of reading ability that he may eventually attain, it is important to have valid information concerning several constitutional factors of these types. In studying a pupil who experiences difficulty in reading it is necessary to determine as accurately as possible the characteristics in which the pupil is deficient and those in which he is average or superior. As part of the remedial program a good teacher will attempt whenever possible to remove the deficiencies and to organize a method of instruction to capitalize strengths when the weaknesses cannot be removed.

Exact diagnosis of intelligence, verbal aptitude, vision, hearing, emotional stability, and other factors related to reading requires the services of a well-trained specialist and, in some cases, complicated and expensive apparatus and equipment. This field of diagnosis is now so extensive and technical that space is not available in this volume for more than an elementary and cursory treatment. It will be the purpose of this chapter to indicate briefly the relationship of the several factors to reading and to suggest certain methods of gaining some insight into a pupil's abilities without the use of technical or expensive apparatus or extensive technical knowledge.

General Intelligence and Verbal Aptitude

Any comprehensive volume on mental testing will include the titles of a large number of tests of "intelligence," "mental capacity," "mental ability," or "mental alertness." An examination of these tests will show that they employ a great variety of materials and problems. The most widely used tests fall into three types:

1. The individual test, such as the Revised Stanford-Binet.
2. The group verbal test.
3. The group nonverbal test.

The Individual Test. The Revised Stanford-Binet and other individual tests of this type consist of a series of problems which are, for the most part, given orally. Many of them depend primarily

upon knowledge of words and the understanding of verbal problems. These problems usually are set up in the form of sentences and paragraphs and the subject responds orally. Such a test usually includes a certain amount of problem material in the form of geometrical figures, diagrams, arithmetic combinations, but even in these cases the problem is typically stated in words. In some instances actual reading of the passage is required. On the whole, the Stanford-Binet type of test is an excellent measure of a pupil's verbal abilities chiefly in oral form. Theoretically it should yield a good measurement of a pupil's verbal ability or aptitude and his ability to comprehend spoken language. For this reason it is widely regarded as an excellent test of a pupil's ability for learning to read. This is especially true when oral problems are largely substituted for the exercises which depend upon reading. In the author's opinion the Stanford-Binet type of test, with certain reading exercises eliminated, provides the best general criterion of verbal or linguistic aptitude or ability in oral comprehension with which achievement in reading may be compared.

Verbal Group Tests. The group verbal intelligence test consists largely of problems phrased in language in printed form. The pupil is required to read and solve the exercises. The correlation between performance on a good verbal test and ability shown on reading tests is likely to be high. For example, in one of the present writer's studies the correlation between the average score from four Gates Silent Reading Tests and the National Intelligence Test, a group verbal test, was 0.78, in the case of sixty fourth-grade pupils, whereas the correlation of the composite reading score and the Stanford-Binet Mental Age Test was 0.66. Offhand it would appear that the National Intelligence Test was a better measure of capacity for reading but the higher correlation is almost certainly due to the fact that the National Intelligence Test is largely dependent upon reading ability. The pupil who is retarded in reading will be at a disadvantage on this test precisely because of his reading difficulty. A better index, in the author's opinion, is obtained by using the Stanford-Binet test, for the reason that the pupil's reading difficulty is a less serious handicap. In general the examiner is ad-

vised not to use intelligence tests depending primarily upon actual reading as the means of determining the verbal aptitude or general intelligence or prospects for achievement in reading of a poor reader.

Group Nonverbal Tests. The Pintner Nonverbal Group Test is a well-known example of this type of appraisal. It is a printed form consisting largely of pictures, geometrical figures, diagrams, and other nonverbal material. Although some oral instructions are given the pupil is required primarily to solve problems in terms of relationships indicated by pictures, diagrams, and the like. Since such a test largely eliminates the verbal factor it would seem to be an excellent means of determining a pupil's fundamental capacity for acquiring abilities dependent upon intelligence as is the case with reading. The evidence, however, is that the nonverbal tests really measure a type of intelligence or ability which is somewhat different from verbal aptitude. It is therefore probably a less valid measure of the kind of intellect or scholastic aptitude upon which reading so largely depends than is the Stanford-Binet type of test.

Some of the group tests devised for use at the beginning of or during the first grade, such as the Pintner-Cunningham Primary Mental Test, or the Detroit First-Grade Intelligence Test, or the California Test of Mental Maturity, which involve considerable oral language but no reading, are good tests for rough appraisals of the kind of intellect involved in reading.

Mental Age. Intelligence, as measured by the modern intelligence test, is usually expressed in two ways—the mental age and the intelligence quotient. The mental age, or M.A., is an index of mental maturity or level. An M.A. of seven years means that the pupil's mental level or maturity is equal to that of an average seven-year-old child; an M.A. of six years equals that of the average six-year-old. The first child is more advanced intellectually and should be capable of performing at a more advanced verbal level. He should be able to understand verbal materials more quickly and to comprehend verbal materials of a more complex character. He should be able to learn more easily and quickly than the pupil with a lower M.A.

Of these two children the pupil with the lower M.A., other things

being equal, should be regarded as less certain to succeed in the initial stages of reading and more deserving of special care and guidance. He may need some additional prereading work. The same general differences would be expected at later grade levels. Of the pupils in the fourth grade, for example, a higher level of reading achievement, other things being equal, should be expected of a pupil with a mental age of twelve years than of one with a mental age of nine years. In a rough and general way it may be said that reading ability, at least reading comprehension, should approximate the same level as the M.A. That the two should be exactly or nearly exactly the same in all cases would be quite unreasonable, for the reason that reading ability depends upon many other things and for the reason that no intelligence test measures perfectly the exact mental abilities involved in reading, untainted by any other aptitudes. The M.A. is, in other words, only a rough and general diagnostic guide.

Intelligence Quotient. The intelligence quotient, or I.Q., is a measure of brightness irrespective of age. It is obtained by dividing the child's mental age by his actual or chronological age. The average I.Q. is 100. For example, if the child's mental age is seven years and his chronological age is seven years, then M.A. divided by C.A. equals 100. If his actual age is six years his I.Q. would be 7 divided by 6, or 117. If it is 8 years, his I.Q. would be 7 divided by 8 or 87.5. Children with I.Q.'s between 90 and 110 represent the average and most numerous group. Those from 100 to 120 are superior, and those above 120 are markedly bright. Children whose I.Q.'s are from 80 to 90 are "low normal" in brightness, and those below 80 are distinctly low in mental ability. In general, the lower the I.Q. the more slowly the child will learn, the more help he will need, and the more likely he is to get into difficulty. Contrariwise, the higher the I.Q. the more easily and successfully the pupil should learn to read and the higher the level of achievement he should be able to obtain.

It should be repeated that children of the same I.Q. or M.A. will vary considerably in many other personal qualities upon which learning to read and the level of reading achievement depend. They may vary greatly in interest, in visual aptitude, and in some of the

techniques of learning upon which acquisition of reading ability depends. The mental test score or I.Q. or M.A. gives by no means a perfect indication of a child's success in reading. These scores are very useful in understanding children's limitations and needs. They should be used along with many other sources of information about the pupil's make-up. They should not be regarded as telling exactly what to expect of each child.

The reading age discussed in the preceding chapters is determined in substantially the same way as the mental age. Thus, for example, a reading age of eight years represents the average reading ability of average pupils of the chronological age of eight. In considering a pupil's reading achievement helpful information is obtained by comparing the reading age with the mental age. If the pupil's reading age is eight years and his mental age on the Stanford-Binet test is eight years, his reading ability is exactly average for one of his mental level. If the pupil's reading age is nine years and his mental age eight he is reading appreciably better than the average American pupil of the same mental age. If, on the other hand, the reading age is seven years his reading ability falls about a year behind that of the average pupil of the same mental ability as determined by this test.

This information is of value in diagnosing the pupil's reading ability. The pupil whose reading age exceeds his mental age is doing relatively well but it does not follow that he cannot do even better. If his reading age is clearly below the average of pupils of identical mental age, search should be made to determine possible causes of this retardation. Here, in other words, is a case in which a more extended diagnosis is desirable.

Similar comparisons may be made in terms of reading grade and mental grade. This is done by converting the mental age into a mental grade by the use of the table given in the Appendix and by expressing the pupil's reading ability in terms of the mental grades. Substantially the same comparisons with the same results are possible. In reading diagnosis the use of the mental grade and reading grade is somewhat preferable since it shows without further computation the actual grade level to which a child's intellect and reading

abilities correspond. One can then see at a glance whether these grade levels are the same as or higher or lower than the grade position at which the pupil is placed at the time.

Other Estimates of Reading Capacity

It is often useful to compare the pupil's reading grade not only with his mental grade but also with his grade position in arithmetic, oral language, spelling, geography, science, or other subjects. In order to do this, objective tests must be available which provide tables of norms by means of which the grade status in each of the subjects can be determined.

The value of a comparison of the reading grade with the grade status in arithmetic, spelling, geography and other school subjects depends to a great extent upon the degree to which achievement in these subjects is determined by reading ability, and upon the extent to which the score in the objective test of the particular subject depends upon reading ability. Many studies have shown that achievement in most of the school subjects is determined to a considerable extent by a pupil's reading ability and also that scores in the objective tests vary with reading ability. Most of the tests involve reading and the poor reader is handicapped in them to some extent precisely because he is a poor reader. To assume that a pupil is reading as well as he should, or that he probably is subject to no specialized reading difficulties merely because the grade score in reading is as good as his grade score in the average of other subjects is an unsound conclusion. The conclusion is unsound because the reading handicap, if it exists, may limit his attainment in all the other subjects.

A survey of results from typical classes tends to show, however, a considerable amount of specialization among the subjects. A particular pupil's achievement may be appreciably higher in arithmetic and geography than in reading and spelling. Another child's performance may be quite the reverse. In the case of a pupil whose achievement in reading falls below his achievement in subjects in which the test and instruction are believed to depend somewhat

Oral Vocabulary

less upon reading, as, for example, in arithmetic, one may suspect that his reading ability is somewhat lower than his general scholastic aptitude or general intelligence would indicate. If the pupil's reading ability is also lower than his age or grade score on an intelligence test, such as the Stanford-Binet, further evidence of a special reading retardation is indicated.

An examiner may therefore profitably compare a pupil's achievement in standardized reading tests with his attainments in the other school subjects. Properly to evaluate the difference requires that the examiner carefully appraise the character of the several tests and the methods of classroom instruction as well. For example, if the instruction in arithmetic involves much oral work and places relatively small demands upon reading, or, to be more specific, say, on the speed of reading, the grade status in arithmetic would provide a more clear-cut indication of the possibility of there being a special retardation in reading than in another instance in which arithmetic is largely studied through reading of workbooks with relatively little opportunity for learning by other means.

Oral Vocabulary

An oral vocabulary test, in which the subject is given a word orally and is asked to define or indicate the meaning by suggesting its use, is one of the subtests in the Stanford-Binet Intelligence Scale. This oral vocabulary test gives a very high correlation with the intelligence test as a whole. If an examiner does not have time to give the whole test, the vocabulary test alone may be given and the M.A. and I.Q. computed for it. The single subtest is by no means so reliable as the entire test but the score is nevertheless valuable where more comprehensive measurement cannot easily be used.

When a good intelligence test is not available the Gates Oral Vocabulary Test, mentioned in the preceding chapter, may be used as a rough measure of the kind of verbal intelligence measured by the Stanford-Binet. The test is not sufficiently extensive to give very reliable results for children in the first three grades but is fairly reliable for children in Grades 4 and above. When used for the

purpose of securing a general estimate of reading potentiality it is advisable to give both forms and average the results. Full directions for giving this test are contained in the Appendix.

Where several measures of intelligence, attainment in school subjects, oral vocabulary, and so on, are available, it is advisable to compare reading attainments with all of them. No one measure is a perfect criterion of possible achievements in reading and when the tests are properly selected all of them may be combined to provide a more reliable basis of comparison.

Vision

It would seem obvious that defects and deficiencies in vision would interfere with learning to read and with ordinary reading at any level of proficiency. Many studies have been made of the relationship between visual competence and reading ability. In general, the correlation is not very high but it tends to be positive. Many studies have been made also of the relationship of each of many types of visual deficiencies to difficulty in reading. Most of these studies have shown that certain defects are found more frequently among pupils who are retarded in reading or who have experienced special difficulty in learning, but at the same time it is usually found that among the good readers are children who have been subject to exactly the same visual defects. There is, of course, a degree of visual difficulty so serious as to make reading practically impossible. Above this is a range of defect which seems in general to represent a handicap in learning to read and in ordinary day-by-day reading. Milder defects may show little or no relationship to the ease and effectiveness of learning to read or to the efficiency of reading under ordinary conditions. They may, however, make continuous reading more fatiguing than it would be with normal or superior eyes. Visual acuity and competence above the so-called normal level seem to show no clear relationship to reading; in other words, a pupil with average vision, other things being equal, is likely to be as good a reader as one whose vision is unusually acute.

The literature contains rather conflicting statements concerning

chapter 4

the prevalence of poor vision among poor readers. At the one extreme one finds a report by Selzer¹ who states that among reading disability cases studied by him 85 per cent revealed some visual defect. At the other extreme is a study by Witty² in which he found that a group of good readers had a somewhat lower level of visual efficiency than a group of poor readers of similar age and intelligence. The more typical finding lies between these two extremes. An example would be Fendrick's study.³ Fendrick compared a group of poor readers, average age 8.61 years, average I.Q. 100, average years in school 2.56, with a group of good and superior readers of the same age, I.Q., and years in school. To all these pupils were given several types of visual examinations, including the entire series made possible by the elaborate equipment of apparatus in the Columbia University Department of Optometry. On the basis of this battery of visual tests the chief of the Departmental Clinic Staff, Professor C. L. Treleaven, rated the vision in four groups as follows:

	<i>Defective Readers</i>	<i>Normal Readers</i>
	PER CENT	PER CENT
1. Normal vision	56	70
2. Slightly defective	22	18
3. Moderately defective	6	6
4. Seriously defective	16	6
Total of 2, 3, 4	44	30

These figures mean that among pupils having no reading defect the tests gave 30 per cent with more or less defective vision, whereas among reading defects, 44 per cent have some degree of deficiency. Among the latter, there is a marked excess of very serious visual cases. Notwithstanding the fact that some children learn to read despite visual defects, even fairly serious ones, as shown by the 30 per cent of visual defects among normal readers, the importance of considering vision in relation to learning to read is apparent.

¹ Selzer, C. A., *Lateral Dominance and Visual Fusion*, Harvard Monographs in Education No. 12, Harvard University Press, Cambridge, Mass., 1933

² Witty, Paul A., "Factors Associated with the Etiology of Reading Disability," *Journal of Educational Research*, XXIX (February, 1936), pp 449-59.

³ Fendrick, Paul, *A Study of the Visual Characteristics of Poor Readers*, Teachers College Contributions to Education, Teachers College, Columbia University, New York, 1935.

Fendrick also used the Ophthalmic Telebinocular developed by Betts. The following results of the telebinocular test which were obtained by him are in terms of the percentage of pupils of each group failing to demonstrate normal vision:

	<i>Reading Defective</i>	<i>Normal Readers</i>	<i>Difference</i>
	PER CENT FAIL	PER CENT FAIL	PER CENT
Binocular acuity	48	23	25
Ametropia (astigmatism)	42	23	19
Left-eye acuity	42	30	12
Right-eye acuity	33	23	10
Stereopsis (depth perception)	12	8	4
Horizontal muscular imbalance	33	32	1
Near-point fusion	12	14	- 2
Vertical muscular imbalance	2	5	- 3
Far-point fusion	2	9	- 7
Convergence-binocular	62	72	- 10

These data do not show inferiority of the poor readers, in comparison with normal ones, in all phases of vision tested in this series. Except for the first four tests, the differences between the groups are statistically unreliable. The greatest difference is in binocular acuity or as Betts terms it, "efficiency." The difference of 25 per cent in this test is nearly equaled, however, by a difference of 19 per cent in ametropia. The other two tests measure acuity or "efficiency" of the separate eyes.

In interpreting the above data, it should be recalled that the tests were made after the pupils had been in school an average of 2.56 years, and were of an average age of 8.61 years. In the case of the average poor readers, the difficulty may have begun two and a half years earlier. It should be noted that the visual defects which are found most frequently among the poor readers, in comparison with normal readers, are those most likely to be permanent. It is possible that had all the tests been given when the pupils started to read, or when in the early stages of learning, the pupils who developed reading difficulties were more frequently subject to deficiency in stereopsis, muscular balance, near-point fusion, and convergence than those who did not. Indeed more recent evidence obtained by Betts and

Vision

others gives evidence that defects in vision in the initial stages of reading show somewhat more influence on success in learning than the Fendrick data would indicate.

In general, the safe point of view to take is this: Printed words are small objects and some of them, such as *there* and *these*, *house* and *horse*, *or* and *on*, are very much alike. Defects in vision even if they do not cause conspicuous errors in word recognition may make the activity more difficult and in any event are likely to make continuous reading more fatiguing and less satisfying. The child who can maintain clear vision only by means of effort may be subject to eyestrain, irritation, general fatigue, and restlessness. Not only in reading but in other phases of schoolwork it is important to detect all defects and deficiencies in vision and to correct them whenever possible. In instances in which full correction or immediate improvement cannot be secured, provision should be made in reading and in other phases of work. Any pupil showing difficulties in reading should have as good an eye examination as it is possible to secure at the earliest possible moment.

Aside from difficulty in learning to read or frequent errors in word recognition certain other symptoms of eye trouble should be looked for. Following is a list of symptoms or conditions which, if they are persistent, would justify an immediate report to a nurse or doctor or oculist.

1. Headache.
2. Pain in back of head and neck.
3. Pain in forehead and temples.
4. Eyes turned in (crossed) or out.
5. One eye turned up or down.
6. One eye closed or covered with the hand when reading or examining an object carefully.
7. Fluttering or trembling eyes.
8. Watering or discharging eyes.
9. Eyelids red, crusty at margins, or swollen.
10. Squinting, shielding the eyes, etc., when facing light.
11. Child reports vision blurred or doubled.
12. Child reports pain or smarting or stinging in eyes.

13. Difficulty in seeing blackboard.
14. Child holds book too close or repeatedly tries different distances as if trying to get a clear view.
15. Child turns head to one side when reading.
16. Child frowns when reading.
17. Child tires quickly when reading or doing other exacting visual work.

Types of Visual Defects. Recent evidence indicates that several types of visual defects or deficiencies may serve as a handicap, some of them a very serious handicap, in reading. Among these defects are the following:

- a. *Disturbed vision due to certain organic conditions.* Amblyopia is a condition of reduced acuteness of vision which cannot be corrected by glasses. It has various known causes, but for some types the cause is unknown. It may produce weak and obscure vision of words. In some cases, the amblyopia is confined to one eye and may be either the cause or consequence of *squint*, or the directing of one eye away from the object of fixation with the result that the image is formed only in one eye.

Scintillating scotoma, which is a form of temporary visual obscurity or confusion associated with *migraine* in adults, may exist in certain forms among children. When the condition is active, reading would be difficult or impossible (depending on the severity of the attack), and even if the spells are short-lived, they might result in more prolonged "conditionings" of an unfavorable sort.

The above are merely examples of eye disturbances which may exist independent of defects of the lens or muscular system.

- b. *Defects of the refraction system.* Oculists and ophthalmologists are equipped to detect various errors in the refraction of the eye. The most commonly recognized defects of this type are *hyperopia*, or far-sightedness, *myopia* or near-sightedness, and *astigmatism*, a condition in which refraction of the several meridians of the eyeball is different. Of these, *hyperopia* and *astigmatism*, both of which disturb vision of near objects, are most likely to interfere with clearness of perception essential in reading. When the refraction is unequal in the two eyes—one my-

opic and the other normal, one myopic and the other hyperopic, one astigmatic and the other normal—difficulties arise as the result of efforts to “accommodate,” that is, to get clear images in both eyes at once. Squint is believed frequently to be the termination of this struggle.

Oculists and ophthalmologists can detect and correct many errors of refraction, but—according to recent investigations in Dartmouth College, to be referred to later—not all of them.

c. *Defects of muscular control of the eyes.* Certain types of *asthenopia* (weak vision) are said to be caused by defects or weakness of the ciliary muscles within the eyeball which control the shape of the lens. Defects of the external muscles which control the movements of the eyeball in the socket during efforts to “accommodate” or converge the eyes on an object, are responsible for a variety of difficulties including such obvious abnormalities as *internal strabismus* (“cross-eyes”), *external strabismus* (“wall-eyes”), or in general, squint. These conditions are produced also by errors in refraction, especially inequalities of refraction of the two eyes.

Heterophoria is a condition in which the eyes, because of unequal muscles or unequal refraction or other causes, tend to deviate but are successfully adjusted, by muscular effort, for binocular vision. It is this condition which is alleged by certain authorities to be responsible for various visual difficulties sufficient to prove a handicap in learning to read. Authorities disagree concerning diagnosis and treatment, as well as significance, of this condition.

New methods of diagnosing defects of vision now being studied by several investigators in the Dartmouth Medical School are producing evidence that in addition to defective refraction and muscular coordination, inequality of the ocular images in the two eyes is responsible for heterophoria and other visual difficulties.

d. *Differences in ocular images.* *Aniseikonia*, which means “unequal images” is a term applied to the condition in which the images formed on the retinas of the two eyes are unequal in size or shape. The results of inequalities in size as small as 3 per cent are said to produce difficulties in vision; differences of 5 per cent

or more to produce squint. The smaller differences which are undetected in the prevalent eye examinations are believed by some investigators to produce confusions and obscurities, or such phenomena as alternating vision, which may be responsible for failures in reading. Unfortunately the instruments essential for diagnosing these conditions with precision are not widely available, as yet, and the techniques are known by relatively few eye specialists.

These and other studies suggest that children may possess visual defects serious enough to be a handicap in learning to read which are not detected, or if detected, not fully corrected, by the methods in ordinary use. Thus, the diagnostician of reading disability should not conclude that a pupil whose visual examination gave negative results or who is equipped with "properly" fitted glasses is necessarily free of visual difficulty. Subjective symptoms may justify one in entertaining suspicions of the existence of visual difficulty.

It should be realized that the mere correction of a visual defect is not sufficient, as a rule, to remove the reading disability. Laboring under the handicap of defective vision, pupils usually acquire various inappropriate reading habits, or a distaste for reading, or both. It is necessary to detect these habits and emotional adjustments, and to apply the remedial treatment appropriate to the type of difficulties found.

Methods of testing vision. Many teachers and educational examiners may be surprised to learn that there is considerable uncertainty and dispute concerning the best methods of testing vision and that various methods of testing in common use give different results. The Dartmouth group, advocating a new method and point of view, believe that most methods now in use fail altogether to detect certain difficulties and fail to correct fully many that are detected. Fendrick's study, in which the same pupils were tested by various standard devices, shows discordant results. This being the situation, a searching examination of vision by the best equipped expert will be none too good for the pupil having difficulty with reading.

Tests of Vision for Use in the Schools. Several "screening" tests have been developed for use by teachers and reading diagnos-

ticians, psychologists, and others, which can be given in a typical school situation. If means of securing expert visual examination are not immediately available, the examiner is justified in using one of these devices. These tests do not give an expert diagnosis and of course reveal only certain disturbances or deficiencies in actual visual functioning. They should not be used for prescribing remedies. Their function is to provide some additional evidence in any case of suspicions of a visual deficiency. With this evidence at hand the teacher may be able more readily to induce the parents or school authorities to secure an expert examination. It should be recognized that when such tests are given by psychologists, reading specialists, and others, the results are rather rough and qualitative and the examination does not embody an appraisal of eye disturbances and other organic conditions which may be related to visual defects or which may exist without any apparent distortion of vision.

The *Betts Ophthalmic Telebinocular*¹ is essentially a stereoscope mounted on a stand with an independent means of illumination and a set of stereoscopic cards which are used for the test of the following:

1. Far-point fusion or ability to combine images from the two points.
2. Binocular acuity or efficiency, or acuity when both eyes are used.
3. Left-eye acuity or efficiency.
4. Right-eye acuity or efficiency.
5. Vertical muscular balance.
6. Stereopsis or depth perception.
7. Lateral muscular balance.
8. Near-point fusion. Ability to combine images at the reading distance.
9. Sharpness of image (far-sightedness, near-sightedness, and astigmatism).

This instrument provides tests both for distant vision and for vision at the ordinary reading distance of approximately sixteen inches. The diagnosis is mainly qualitative; that is, it reveals whether the pupil probably has a given difficulty in a significant degree without defining it exactly as required for prescription. The tests were designed primarily for the purpose of detecting defects of impor-

¹ This instrument with a Manual of Directions prepared by E. A. Betts is distributed by the Keystone View Company, Meadville, Pa.

tance in causing reading difficulty. The entire series of tests can be given in ten to twenty minutes with an apparatus that can be carried about and set up anywhere.

The *Eames Eye Test*, devised by Thomas H. Eames, M.D., an eye specialist who has done much research on reading problems, is a convenient outfit much less expensive than the telebinocular. It includes a visual acuity test of the conventional Snellen type, intended to measure general acuity and to detect such eye conditions as myopia, amblyopia, and so forth. A second test called the "Lens Test" is designed to measure the same defects as the first test except that the subject uses the lens while reading. The third test, called the "Coordination Test," employs an ordinary stereoscope. It is designed to test difficulties in coordinating vision and to reveal serious conditions of heterophoria. The fourth test, called the "Function Test," is intended to reveal defects in binocular vision. In this test the stereoscope is also used. A chart is also provided for appraising astigmatism. In general, this test is similar to the Betts telebinocular.¹

There are as yet available few extensive studies providing a comparison of the Eames and the Betts outfits. One might guess that the telebinocular is a somewhat more precise instrument, but in any case only a general appraisal of vision can be made. Either would serve to locate symptoms indicating some of the more common and serious visual deficiencies.

The *Ophthalm-o-graph*, a device for photographing a ray of light reflected from the eye in such a way as to indicate the nature of the eye movements during reading, provides certain possibilities of detecting visual defects, especially faulty coordination of the two eyes during the reading process.²

In using the photographs obtained by this apparatus it is often difficult to be sure whether the variations in the lines from parallel are due entirely to eye movements or to movements of the head, im-

¹ The *Eames Eye Test* is distributed by the World Book Company, Yonkers-on-Hudson, New York. An ordinary home stereoscope may be employed with the test material.

² The *Ophthalm-o-graph* is distributed with a manual by the American Optical Company, which has branches in most of the large cities. A recently quoted price for this instrument, together with the manual, is \$295.00. The film used in photographing the ray of light, the costs of developing the film, etc., are additional expense.

Color-Blindness

proper focus, or other irrelevant matters. It requires rather extensive experience, in the writer's opinion, to judge visual defects on the basis of these photographs. The evidence is in no case a substitute for a complete visual examination by the Eames, the Betts, or other simple tests, much less a substitute for an examination by a competent physician. The data obtained from the Ophthalm-o-graph are of strictly supplemental usefulness.

Color-Blindness

An average of four boys and one girl in every hundred will be color-blind in some degree. By far the most common form is red-green color-blindness. The color-blind child typically has difficulty distinguishing red and green from each other, and is likely to confuse both with other colors and with gray. A much less common form is color-blindness for blue and yellow.

The color-blind child rarely discovers his difficulty and his parents and teachers are not at all likely to note it either. In fact, many intelligent persons who have frequently been examined by physicians and other specialists may reach adult years before discovering that they are color-blind.

Color-blindness probably interferes very little with reading except in the first grade or two. The difficulty is likely to be most pronounced in the early stages of reading. This is due to the fact that the modern reading program makes extensive use of color. Color-blind children may have more difficulty interpreting the color pictures now so widely used in beginning reading materials. They may be confused in correlating activities with pictures, with actual objects, paintings, murals, and other materials. In attempting to select colors to illustrate a passage they have read or to identify objects by color when color cards are shown, these children may become confused.

Color-blind pupils are less likely to make errors in identifying the colors of objects or pictures of objects which are usually or always of the same color, such as the green leaves of trees, red flowers, and the like, because they have learned to use the proper words for

these objects. They are prone to make gross errors when pictures are represented by an unusual color or by different natural colors at different times; for example, if the picture reveals the autumn yellows or reds in the leaves of trees the pupil may call the trees green. Pupils are likely to make mistakes in identifying colors on paper, circulars, yarns, cloth, or other objects which may be of any color.

Color-blindness is not curable. It is important because of its subtly confusing character, especially in the initial stages of reading. The teacher should attempt to identify the color-blind child and to provide special help and consideration in any form of work in which the identification and naming of colors is called for.

Although the services of a doctor or medically trained eye specialist may be necessary to tell for certain whether a child is color-blind, reasonably reliable evidence may be secured by the use of a simple test such as the *Jensen Test of Color-Blindness*¹ or the test cards included in Betts' telebinocular outfit.²

Hearing

If a child cannot hear well he may encounter difficulty in associating spoken words with visible word forms, in mastering phonic and phonetic skills, and in following oral lessons, explanations, and instruction. He may be handicapped by failing to hear accurately what other children are saying or reading in classroom activities. Even if he does not suffer seriously by the mere loss of what he fails to hear, he may be subject to emotional tensions resulting from mistakes in his comments or recitations which are the results of misunderstanding or mere failures to hear. A comprehensive study on the relationship of defective hearing to reading ability by G. L. Bond³ showed that partial deafness, even in marked degree, is not always recognized by the pupil or his parents or teachers. Bond found, in fact, that certain pupils seriously retarded in reading,

¹ This test is distributed by the Psychological Corporation, 522 Fifth Avenue, New York.

² *Op. cit.*

³ Bond, G. L., *Auditory and Speech Characteristics of Poor Readers*, Teachers College Contributions to Education No. 657, Teachers College, Columbia University, New York, 1935.

Hearing

probably because of hearing difficulties, were merely rated as "inattentive," "indifferent," or "lazy." Their apparent inattentiveness or indifference was the result of their inability to hear much that was going on in the classroom.

How seriously a hearing defect interferes with learning to read depends in part on certain accidental factors, such as the position in which the pupil is seated in the room, the volume and clarity of the teacher's voice, and also upon the form of instruction employed in teaching reading. When Bond divided his entire experimental group into two subgroups, one comprising average and better readers and the other the poor readers, he found that in the first group there appeared 11 per cent with a hearing loss of 15 per cent or more, as compared to 30 per cent among the poor readers. While some children with marked hearing loss obviously learned to read, a much larger number encountered reading difficulty.

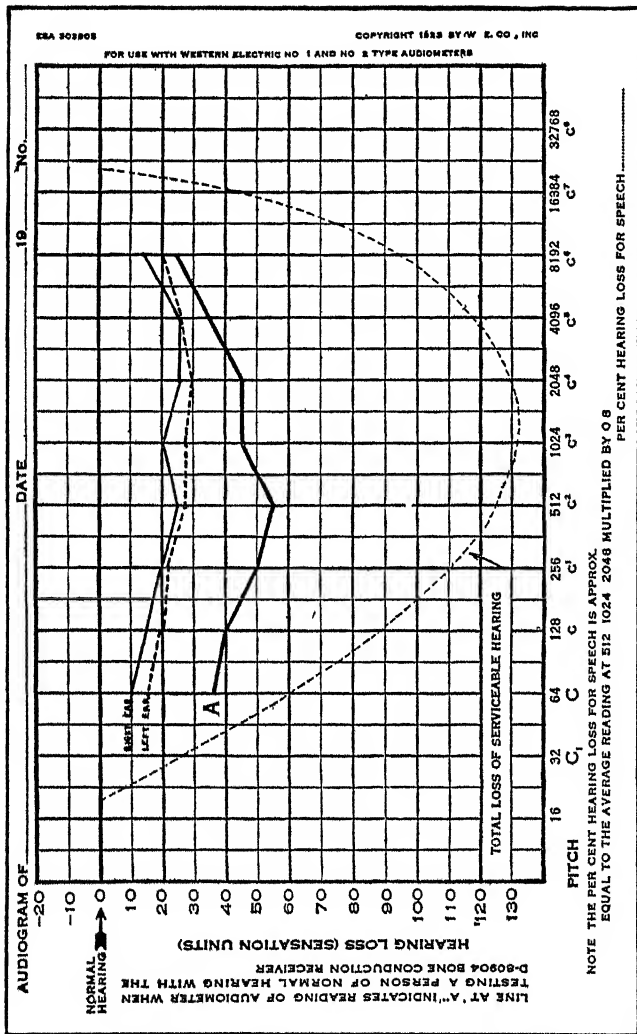
One of the many significant findings in this study, moreover, is the fact that among pupils in the schools not using phonics and phonetics and not depending extensively upon oral instruction, there was not a reliably greater number of hearing defects among the poorer readers than among the normal readers. In the schools in which oral instruction and phonetics were fundamental, the differences were very great. In this group only 4 per cent of the normal readers showed a significant hearing loss, whereas 63 per cent of the retarded readers were hard of hearing. Here is clear evidence that hard-of-hearing pupils are severely handicapped in a program depending heavily upon phonetic and oral methods. It should be noted that Bond's evidence indicates that the hard-of-hearing pupils can, however, learn to read well when the method does not depend unduly upon hearing. This is a good illustration of the extent to which reading instruction is more fruitful when methods are nicely suited to the limitations of the individual.

A child may be hard of hearing because of some more or less permanent and incurable physical condition or because of some infectious or other disease which proper medical treatment could remedy. In some instances, difficulties in hearing may be due to excessive wax in the ear canal or a temporary irritation following a

cold. Only a competent physician can discover the cause and, in some cases, medical treatment is the only means of effecting a cure. Any child who is suspected of suffering a hearing defect should receive an expert examination if possible. In fact, any child who is having difficulty in reading should have a hearing diagnosis, as part of the search for causes of the reading defect.

The child with deficient hearing should be given every possible advantage. The teacher should place him in the most favorable position in the classroom and give him special attention in connection with all oral work. This is, in some respects, difficult. For example, the hard-of-hearing child may be given a seat up front in order to be able to hear the teacher well, but this puts him at a special disadvantage for hearing comments of pupils from the back of the classroom. The teacher may help by repeating important comments for the special benefit of the hard-of-hearing pupil. In so doing, however, it is advisable to conceal the fact that the comments are repeated for the child who is defective. Some hard-of-hearing children are very sensitive about their defect. Indeed it has been found that it is quite an achievement for a child to face the world wearing a hearing aid, even when this device greatly increases his hearing. In ear-training activities and phonetic work such a pupil may need special help as well as the most advantageous position in the class. The teacher should provide the hard-of-hearing pupils with unusual amounts of self-aids of a printed or visible sort, and modify, to some extent, the instruction for mastering the techniques of word recognition and other phases of reading.

Tests of Hearing. Various types of instruments are now available which make possible a very exact and comprehensive determination of hearing acuity. The figure on page 97 shows an audiogram or a graph presenting the amount of hearing deficiency of tones of different pitch or frequency as determined by means of an *audiometer*. Audiometers are being provided with increasing frequency in the medical offices, the reading clinics, and the psychological clinics in schools. Many, perhaps most, general physicians do not have a precise instrument of this type although they are available in most well-equipped hospitals, medical clinics, and educa-



This is an audiogram of the case mentioned on page 379. This pupil, whose hearing deficiency was unsuspected, shows a loss in each ear varying from twenty to nearly thirty per cent between 256 and 2048, the range of the human voice. Note that the pupil's loss is greatest in this range and less great in the very low and very high pitches. The irregular line marked A in the audiogram is of no significance in this case. It is the line of normal hearing for persons with a bone conduction apparatus, not used in this case (Reproduced with permission of G. I. Bond, who made the examination.)

tional and psychological clinics. Where more informal tests or classroom evidence indicates the probability that the pupil is deficient in hearing an audiometer test is desirable. It is desirable also to have a medical ear specialist determine not only the amount of the hearing loss but the type and causes of the deficiency. What remedial measures to take and whether or not a hearing aid should be employed are questions for the specialist to answer.

Where facilities for securing a hearing test by means of the audiometer or an examination by a specialist are not readily available the teacher can conduct a rough examination herself. The "whisper" test is a test for auditory acuity used exclusively by many physicians and can be given in a few minutes. Directions for giving this test are given in the Appendix.

Audiometers of several types are now on the market. Some are designed for testing a small group at one time. They are less exact than the instruments constructed for individual testing. Inasmuch as these instruments are expensive and involve highly technical features, despite the fact that most of them are not difficult to use, it is advisable for the prospective purchaser to secure the advice of specialists on the characteristics of the various models available. The Council on Physical Therapy of the American Medical Association, Chicago, Illinois, will furnish useful information about audiometers and hearing aids.

Speech Defects

Speech defects and various forms of difficulties in articulation due to immature speech development may have unfavorable effects upon learning to read. A child who has difficulty in speech or makes frequent mispronunciations may become embarrassed in oral reading and in talking during reading activities. This embarrassment may make him reluctant to engage in the activity, emotionally tense when he does so, and in some cases fearful of being called upon. In these instances general emotional distress is responsible for the difficulty in learning to read. The embarrassment and fear are likely to be increased when pupils laugh at or correct the child or when

Speech Defects

the teacher calls attention to the difficulties or attempts to correct them before the group. In some instances the difficulty with oral reading and other oral activities spreads to silent reading. The pupil is tense and disturbed in all his efforts to learn to read. Even thinking about reading may make him nervous.

Certain difficulties in speech may interfere with learning to read by blocking smooth progress along the printed line. A child who stutters or who gets speech clutches suffers from a definite interference with the reading activity. This interference is in some respects similar to other interruptions, such as noises or disturbances in the class. The pupil has difficulty keeping his mind on the reading activity and in moving forward at a smooth pace. In the early stages of reading and in many cases at more advanced stages silent reading is accompanied by fairly definite articulation either audible or inaudible. If the pupil's speech defects interfere with this "inner speech" it interrupts and disturbs the reading process.

The evidence from the relatively few studies done on the relationship of speech difficulties and reading¹ tends to show that pupils subject to speech defects on the average read nearly but not quite so well as equivalent children with normal speech. As in the case of most other physical deficiencies a speech defect is a handicap in reading which the majority of pupils can overcome. With sagacious and sympathetic handling doubtless most of them can. Some children undoubtedly suffer some difficulties because of the speech defect and read less well, especially during the primary grades, than they would were they free of the deficiency. In some instances the mere fact that a pupil has a speech defect and is less comfortable than normal pupils in oral language activities results in his developing a very special interest in reading. The pupil soon notes that reading is an activity in which his handicap is at a minimum and not apparent. Such a child may take to reading with unusual enthusiasm and achieve greater proficiency than children otherwise similar who have normal speech.

Certain defects in speech require the attention of a speech

¹ For example, Portia G. Hamilton, *The Visual Characteristics of Stutterers during Silent Reading*, New York, 1940.

specialist—cases of stuttering, cleft-palate speech, spastic speech, aphonia, persistent hoarseness, and mutism, as well as the speech accompanying hearing defects. The teacher cannot hope properly to diagnose these difficulties but it is important for her to identify them and to distinguish them from less serious defects.

It is important to distinguish stuttering from cluttering and from certain forms of defective articulation. The speech accompanying cleft palate can usually be recognized without difficulty. Spastic speech, caused by a cerebral hemorrhage at birth, is such a pronounced distortion resulting from lack of muscular control that any teacher can easily learn to identify it. Aphonia is a whispered or nearly voiceless speech. Mutism is an extreme case of delayed speech. The child may seem devoid of the power of speech. This difficulty may result from physical or psychological factors. All these serious defects are relatively infrequent.

The more common speech faults can be recognized by the teacher and most of them can be successfully treated by her. Lispings and most forms of defective articulation, omission, transposition, and substitution of sounds; indistinct speech; foreign accent; cluttering; and various vocal difficulties, such as the nasal and denasal, the monotonous and the high-pitched voice, the teacher should learn to recognize and treat. A simple speech test prepared by Professor Magdalene Kramer, Head of the Department of Teaching Speech of Teachers College, Columbia University, is given in the Appendix. With a little practice any teacher can make effective use of this test.

Difficulties in articulation. When the child enters school, he normally has a command of the vowel sounds in the language. These sounds may not be accurate, but usually they are pronounced as they have been heard in the local community. Difficulties arise, however, with the articulation of many of the consonants. The sounds which most frequently cause difficulty are *s*, *z*, *sh*, *ch*, *j*, *l*, *r*, *v*, *g*, *th* (*thin*) and *th* (*then*), and *wh*. These difficulties, in most cases, are due to slow development or unskilled speech management at home or mere lack of well-directed incentives to improve. In certain cases, however, difficulties with the consonant sounds are due to malformation of the mouth, malocclusion (improper fitting) of the

Speech Defects

jaws, or to incomplete dentition. Such children should be referred to a specialist for advice concerning procedures to follow.

Lisping. Lisping is a form of mispronunciation of the *s*, *z*, *sh*, and *ch* sounds. Four types of lisps may be encountered among children of kindergarten or first-grade age, as follows:

1. Lingual protrusion—the *th* is substituted for *s*.
2. Lateral emission—the *l* is substituted for *s*.
3. The dull, blunt *s*—the *sh* is substituted for *s*.
4. The nasal *s*—the *s* pronounced with the air passing through the nose instead of through the mouth.

A lisp may be due to the malocclusion of the jaws or merely to inadequate development of speech habits. Lisping often develops through imitation of the mispronunciation of the sibilant by the members of the family or other persons whom the child hears frequently.

Substitutes, Omissions, and Transpositions. Defective articulation may include substitutions of sounds, omissions, or transpositions. The most frequent and most persistent substitutions found among young children are the following:

t, d, for *k, g*; *take* for *cake*; *date* for *gate*;
f, v, for *th* (*thin*), *th* (*then*); *fung* for *thing*; *vere* for *there*;
t, d, for *th* (*thin*), *th* (*then*); *tin* for *thin*; *den* for *then*;
s for *th* (*thin*); *sink* for *think*;
r or *w* for *l*; *rike* for *like*; *wight* for *light*;
w or *l* for *r*; *woll* for *roll*; *led* for *red*;
b for *v*; *bery* for *very*;
n for *ng*; *sin* for *sing*;
w for *wh*; *wen* for *when*.

Other minor speech defects. In infantile speech, omissions of sounds and syllables are likely to occur. For example, *ba* for *ball*, *difculty* for *difficulty*. Often the child will transpose a sound, as, for instance, *lots* for *lost*.

Indistinct speech may be due to lack of experience in speaking or to a condition in which the lips and tongue are either too rigid or too relaxed. The consonant sounds are articulated with insufficient firmness to make them clear.

Cluttering is a very rapid speech which results from a failure to coordinate thought and articulation. It is usually found in the impulsive, nervous child who does not take time to articulate carefully. Frequently sounds are repeated, sometimes omitted, and sometimes transposed.

Among young children the most common voice difficulties are: nasality, denasalization, monotonous voice, and a high-pitched voice. If there is no cleft in the palate, the nasal speech may be due to inactivity on the part of the soft palate. Both nasal and denasal speech may result when the nasal passage is closed by adenoids or polypi, or a deviated septum. A monotonous voice may be caused by the child's failure to read inflections, or by a disinterest in speech activities. The high-pitched voice may be the result of emotional tension, or it may be simply a bad habit.

Before remedial work in speech is undertaken, it is important that the speech defect or speech fault be carefully diagnosed. In the case of articulatory difficulties, it would be advisable for the teacher to give a speech test including all the vowel and consonant sounds. Additional tests which can be used informally from time to time to note a child's progress are made by using Mother Goose rhymes selected to include all the speech sounds. Another method is to have a scrapbook with pictures, or a series of objects, which will elicit word or sentence responses including the desired sounds. The speech test outlined in the Appendix should be repeated at intervals during the year.

Physical Fitness

Learning to read requires alert attention and good concentration on the task at hand. Despite the fact that many children seem to learn easily the task of learning to read is really a complicated and difficult one. The child must pull himself together and devote his mind fully to the work, especially in the initial stages. Failure in reading often comes from the pupil's inability to devote himself vigorously and fully to the task at hand.

Some children fail to learn or learn slowly because of physical

Defects in Associative Learning

distress or poor general physical condition. The pupil who is suffering from actual distress or fatigue or who is below par physically may be able to attend to his individual or group work only by fits and starts. He may apply himself for a few minutes and then let his mind wander. When his attention is again directed to the work he may be confused because of what was missed when he was inattentive. Sometimes the child who is below par physically becomes almost continuously inattentive or drowsy. He may be attempting to attend to what is said or shown but he may fail to react vigorously enough to learn much. In some instances, physical difficulties may result in negative attitudes toward the task. The pupil may be easily annoyed. He may become unduly resentful of criticism and upset by his failures. If he does not develop a negativistic attitude he may be subject to tensions and nervousness.

Physical distress and poor physical tone may result from many different causes, any one of which may seriously interfere with the child's success in reading. Consequently, such symptoms as lethargy, inattention, irritability, drowsiness, excitement, and nervousness should be noted and the pupil promptly referred to the best available source for medical attention.

Absence from school due to illness is a not infrequent cause of difficulty in learning to read, especially during the first year. Even a short absence may result in the pupil's failure to acquire understandings or techniques or new words which are critically needed in later work. For example, a child during the early period merely by failing to learn the "new words" taught during a period of days may be unable to read the advance assignments when he returns. This may discourage him or force him to resort to new but inappropriate methods of meeting the situation with persistent ill effects.

Defects in Associative Learning

As pointed out in Chap. 1, early work by certain neurologists, physicians, and ophthalmologists gave rise to the concept "word blindness." The following statement quoted from Cyril Burt in-

dicates clearly the original meaning of this term and the present attitude toward it.

Strictly, the term "word-blindness" denotes a condition, most commonly occurring as the sequel to an apoplectic stroke, where a hemorrhage destroys a portion of the visual area of the brain, and so leaves the patient destitute of memories for word-forms as seen. The patient sees black marks upon white paper, but fails to recognize them as standing for sounds or ideas; views them as an unlearned Englishman might view a text in Greek. It has been supposed that an analogous condition might exist from birth; that, owing to imperfect development of the same portion of the brain, the child might be unable to store up, in the shape of memories, word-forms as seen. For the existence, however, of such "congenital word-blindness" the evidence is far from conclusive. When, therefore, a child is definitely backward in some linguistic subject—backward in that subject by at least 30 per cent of his age, and in that subject twice as backward as in any other school subject or in general intelligence (for so would run my definition of "specific disability")—it still seems wiser to speak only of "special disability in reading" (or spelling, or whatever the subject may be); and, instead of assuming some gross cerebral defect, such as post-mortem inspection could alone reveal, to proceed further, and enquire by actual experiment to what particular defects in various alternative mental functions the disability is to be ascribed.¹

Most present-day specialists in reading are convinced that this concept can rarely, if ever, be applied to reading disability. They do not now include in their program any specific tests or examinations for congenital "word blindness."

The term "word blindness" is, however, still used by a few specialists in remedial reading with a different meaning from the one originally ascribed to it. In most of these instances word blindness is used to describe the case for whom no specific cause of difficulty can be found. In the author's opinion, this usage is very unwise, for the reason that it implies nothing definite in the way of diagnosis or treatment and is likely to be alarming to the subject of the disability or his parents on hearing, as they often may, that "word blindness" results from some congenital defect of the brain or the

¹ Burt, Cyril, *Mental and Scholastic Tests*, P. S. King & Son, Ltd., London, 1921, p. 284.

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nervous system. Such an ominous term should be used only on the basis of extraordinarily extensive and sound analysis.

Children will differ in their ability to learn by associating a visual stimulus, such as a printed word, with a word meaning given orally, as when one speaks a word, or a word meaning conveyed by a picture of an object. The author has developed an "Associative Learning Test" which may be used to estimate a pupil's ability to learn to attach a particular word meaning to a visual item resembling a word. For the latter purpose artificial symbols which may be presented singly, thus resembling a printed letter, or in a series, thus resembling a printed word, are used. This test is not included in the Gates reading diagnosis series but may be secured separately.¹ It may be used in the examination of seriously retarded readers and "nonreaders." It is not a measure of "word blindness" but rather of a complex of factors involved in "associative" or "associational" learning of the general type involved in reading.

In all cases it seems better from every point of view to explain the reading deficiency in other terms rather than to ascribe them to any general deficiency of memory or association or of particular brain centers. There are, of course, rare instances in which the neurologist can identify actual structural injuries in the brain which result in difficulty in learning to read or in some cases in loss of ability to learn to read. Such diagnoses, however, can be made only by an expert neurologist.

Defects in Imagery

That individual differences in the use of different types of imagery, such as visual imagery, auditory imagery, kinaesthetic imagery, do exist, has long been known. A half century ago the study of mental imagery was actively pursued by psychologists. A quarter of a century ago there was a tendency for psychologists to explore the mental imagery as a possible basis for explaining reading deficiencies. The literature, especially the older publications, contains many instances in which a pupil's difficulty was believed to be due to weakness of auditory or visual imagery.

¹ By addressing the author.

This policy is rarely pursued at the present time. In the first place, diagnosis of imagery is exceedingly difficult and unreliable. Most examiners, even those with thorough psychological training, are doubtful of the validity of any diagnosis of the imagery of children. There are certain reading specialists active at the present time who frequently make statements concerning the role of mental imagery in learning to read. The most common assumptions are that pupils deficient either in visual or auditory imagery, especially the former, are handicapped. These statements represent a general theoretical point of view concerning the nature of the reading process rather than clear-cut, valid evidence of the nature of imagery in a particular case. These specialists rarely conduct precise tests of the imagery of particular individuals. The process is too uncertain and too difficult to be employed by any but the highly specialized psychologist in diagnosing reading difficulties. The majority of specialists in reading believe that the deficiencies alleged to be based upon limitations in imagery are much more probably deficiencies in techniques or ways of working.

Other Concepts

Various other concepts will be found in the literature of reading disabilities. One of the better known of these is the concept of *strophosymbolia*, which means "twisted symbols," and which refers to a lack of dominance of one hemisphere of the brain over another. This concept will be considered in Chap. 10 in connection with reversal errors. Certain other concepts will be referred to in other sections of the book in connection with topics to which they are most closely related.

Hand and Eye Dominance

Some years ago several specialists in reading disabilities asserted that the left-handed child was severely handicapped. At about the same time it was discovered that individuals have a dominant eye as well as a dominant hand. Some individuals, for example, tend to

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make much more use of one eye than the other in various sorts of sighting activities. It is often found, moreover, that vision in one eye is clearly superior to that in the other. Some children, furthermore, appear to be about equally proficient with either hand or either eye and have no marked preference for either. Finally, a pupil may have a dominant eye on one side and a dominant hand on the other or the dominance of the two organs may be identical. It has been alleged that the left-eyed pupil as well as the left-handed pupil is handicapped in learning to read and more recently several workers have insisted that the pupil who lacks dominance of the eye or hand or who is of mixed dominance is subject to a handicap in learning to read.

At the present time it must be said that the evidence of the extent to which these several characteristics contribute to difficulty in reading is by no means clear. The tendency, however, seems to be definitely in the direction of minimizing the importance of these factors. Some of the characteristics, such as the eyedness and handedness, may be diagnosed at least roughly in a short time. The techniques of diagnosis are quite simple and some of them are given in the Appendix. It seems advisable, however, to discuss the importance of these characteristics in later chapters in connection with the phases of reading ability on which they are alleged to exercise particularly potent effects, such as the establishment of the habit of viewing words and reading sentences from left to right.

Emotional and Nervous Stability

Pupils subject to marked deficiencies in reading are quite frequently reported by teachers and other observers as subject to symptoms of nervous or emotional instability. They may be reported as nervous, irritable, retiring, aggressive, sensitive, inattentive, et cetera. They are often described as subject to "attentional instability," "emotional instability," "inability to concentrate," as "lacking in persistence," "disposed to give up quickly," "easily discouraged," "lacking confidence," and in many other ways.

Psychologists and psychiatrists usually assume that children differ

in emotional or nervous stability. Many assume that some children are continuously more disposed to become nervous, irritable, easily discouraged, unable to keep the mind on the task, more readily upset than others. Offhand it seems quite reasonable to assume that a child who is more sensitive or prone to emotional distress would be likely to be handicapped in learning to read in comparison with a normally calm and well-integrated personality.

Several investigations of these personality or emotional characteristics of good readers in comparison with poor ones have been made. The results of most of these studies confirm this general view, but they also indicate that the greatest caution must be exercised in attributing a pupil's reading difficulty to characteristics such as nervous instability, inattentiveness, lack of persistence, and so on.

It should be noted, in the first place, that many of these characteristics are the natural result of difficulty in reading, however caused. For example, a child who fails in learning to read because he did not acquire the techniques of looking at words consistently from left to right might shortly show various signs of emotional distress as well as inattentiveness, apparent laziness, and inability to keep his mind on his work. Failure to learn to read makes one socially conspicuous in an unfavorable way. Children are likely to experience very severe frustrations if they do not get along well in reading. These circumstances alone may set up a variety of nervous and emotional symptoms which are not the cause of the reading difficulty but, on the contrary, the result of it.

The same types of nervous and emotional symptoms as well as inattentiveness may be fundamentally caused by a great variety of factors. Certain uncorrected visual defects, poor hearing, glandular imbalance, focal infections, and many other things, may be the basis of the observed instability or irritability. It is therefore exceedingly difficult to identify types of nervous instability which are independent of such causes.

Although the teacher or examiner may be properly advised to be on the alert for symptoms of emotional or personality instability, she should be cautioned against assuming that these are permanent

or constitutional characteristics until many other possible sources of the symptoms are explored. In other words, nervousness, inattention, irritability, should be regarded merely as surface symptoms, the fundamental causes of which may be far from obvious and very different to detect. Only highly trained clinical psychologists and psychiatrists working jointly with other medical specialists can arrive at a reasonably secure diagnosis and the task is very difficult for even the most expert practitioners.

It is important, furthermore, that the teacher not assume that because a child seems to be unduly nervous or jittery or exceedingly quiet or disposed to withdraw, or inattentive, or likely to get tired of a piece of work quickly, or possesses other symptoms of these types, he will necessarily have difficulty in learning to read. In such careful surveys of the nervous and emotional stability of good readers in comparison with poor readers as those made by Ladd, Bennett, and others,¹ it was found in fact that the differences between the groups as a whole were not conspicuous and that among the very good readers were a number rated as possessing most of the symptoms of instability. Among the pupils rated by teachers as having weak attention and persistence, as being nervous and unstable, and as showing each of the many other presumably undesirable characteristics, were many who learned to read exceptionally well.

It should be finally noted that emotional symptoms may be produced by other difficulties. For example, some of the symptoms listed above may result from a child's inability to adjust himself happily to group activities on the playground, to the dominating attitude of one or both parents, or to clashes with brothers and sisters at home. In fact, many of these symptoms may be produced by unfortunate "mental adjustments" or "emotional adjustments," as well as by unique constitutional factors, physical disabilities, or

¹ Ladd, Margaret R., *The Relation of Social, Economic, and Personal Characteristics to Reading Ability*, Teachers College Contributions to Education No. 582, Teachers College, Columbia University, New York, 1933.

Bennett, Chester C., *An Inquiry into the Genesis of Poor Reading*, Teachers College Contributions to Education No. 755, Teachers College, Columbia University, New York, 1938

failures in reading. The possibility that unfortunate adjustments may unfavorably affect reading and other school activities has been so clearly established that a special section will be devoted to it.

Mental and Emotional Adjustments to Reading

There is now substantial evidence for recognizing the fact that success in reading depends in no small measure upon the kind of mental and emotional adjustment the pupil makes to the learning situation. The pupil who really desires to learn to read, whose emotional adjustment is favorable—not being too indifferent on the one hand or too anxious on the other—who finds satisfaction in his reading achievements, and who realizes satisfying purposes to which reading may be put in his daily life, is far more likely to learn to read than one of similar equipment whose adjustment is less favorable. Indeed, almost every experienced reading specialist has encountered children who, despite extraordinarily good constitutional equipment for learning to read, have failed to learn to read well because of misleading motivation or unfortunate mental adjustments.

The following case illustrates one of many types of mental adjustment which may produce emotional resistance to learning to read. A boy had been sent to a progressive school on the insistence of the mother and despite the opposition of the father. The mother contended that the progressive school would provide more fruitful education whereas the father predicted that no good would come out of the new-fangled ideas. He maintained in particular that the child would fool around most of the time and not learn to read and write and do his arithmetic. Once the pupil had started going to the progressive school the anxious mother tended to nag him to do well, particularly to read well. The father continually sought for evidence that the boy was doing poorly. The boy thus found himself the center of a conflict between the parents. The boy fluctuated between periods in which he appeared to be learning to read reasonably well and periods when he seemed to have forgotten what he had previously learned and was unable to learn

any more. The boy really wanted to please both parents. At first, he alternated from a favorable to an unfavorable attitude and eventually he became confused. The pupil thereafter made uncertain progress and was reported as a reading disability. Fortunately, in this case after studying the motivating conditions in the home and in the school, the examiner discovered the vital factors. When the situation was explained to the parents and all was understood and forgiven, the boy proceeded to learn rapidly and well.

These blockings and resistances may arise from conditions in the home or in the school, in the playground, and elsewhere. Personal influences are very likely to play a leading role. Vital factors in unfortunate types of maladjustment may be the activities or attitudes of the parents or other adults in the home, brothers and sisters, other children and friends outside of the school as well as those of pupils and teachers within the classroom. Some of the settings which have been found instrumental in producing misleading motivation and emotional resistance are of the following types:

1. *Apparent indifference of the teacher or parents to the child's welfare.* This is the case of the insecure or neglected children. They may lack emotional balance and intellectual purpose. They may fail to learn to read because they feel insecure and lack confidence. Their failure may be due to their preoccupation with apparent lack of affection in the home or in the school. In some instances the child may feel that the parents are indifferent because he has not distinguished himself and a fear of failure may be his undoing in the reading lessons. In other cases the child may find that the parents give him more attention when he is reported for difficulty in reading than when he is doing nothing conspicuous in school. The child may, without quite understanding it, be motivated to fail repeatedly in order to secure the attention of otherwise indifferent parents.
2. *Apparent hostility of teacher or parents.* Hostility may be shown in many ways, as, for example, by scoldings, predictions of failure, and unfriendly looks. Hostility affects different children differently. Some may be actually challenged to do better work than otherwise. Others are so emotionally upset that they are

incapable of learning to read even if they try very hard. Indeed some of their difficulty may come precisely from trying too hard. Hostility may also result in an unfavorable mental attitude. The pupil may respond to hostility by fighting back in one way or another. The fighting back may take the form of repeatedly failing in the reading lessons. This may, roughly speaking, represent a pupil's way of getting the better of the teacher or of the parents, as the case may be.

3. *Apparent anxiety of the teacher or parent.* The parent often thinks that the major test of a pupil's all-round intellectual ability is his success in learning to read in the first grade. An anxious parent may think how dreadful it would be if her child failed and this should become known to other children and other parents. Motivated by this anxiety the parent may be constantly making inquiries about the pupil's progress in reading or attempting to supervise his work or induce or order him to work harder or longer. The parent's own anxiety is thus conveyed to the child, who begins also to become anxious about his ability to learn to read. This anxiety may interfere with his progress. The more it interferes the greater it becomes until eventually the emotional tension results in marked retardation or failure. It may, in many instances, result in the pupil's adopting an attitude that reading is unimportant or a dull activity and, to use the psychological term, he "leaves the field."

The overly concerned teacher, fearful lest some of her children fail to learn to read, may also produce an anxiety on the part of some of the pupils which will block their progress. An inexperienced teacher, for example, who knows that children sometimes do fail to learn to read may become fearful that such cases would jeopardize her professional security and become so concerned as to upset some of the more susceptible pupils. As she sees evidence that these pupils are not making proper progress her concern is intensified and a vicious circle is established.

4. *Overprotection of the child by the parents.* The reading specialist now and then finds cases in which the parents have guarded and supervised a child so much that he has not learned how to under-

take any very difficult task without continued and extensive personal assistance. Such a pupil has only learned how to learn under intimate and detailed guidance by an adult. When he gets into a large classroom in which the teacher is unable to give him her undivided attention at every step he may become bewildered. He may fail to learn to read properly merely because he has not learned how to proceed on his own initiative, or he may develop an attention-attracting mental adjustment. For example, he may refuse to work or he may make conspicuous errors when he discovers that such behavior brings the teacher to him. He may, in fact, prefer to have the attention of the teacher to learning to read successfully by himself.

5. *Domination by the parent or teacher.* In some instances the oversolicitous or overprotective parent is really rather dominating. This habit of domination grows out of many motives, as, for example, the parent who is anxious to become distinguished as the mother of the best reader in the class. Now and then a parent who was not very successful himself or herself in school may want to clear the record, as it were, by having the offspring at the head of the class. The parent may, in such a case, take a rather dominating attitude toward the pupil in many activities before he enters school and continue it after he begins his schoolwork. The parent may enter actively into the child's work in reading and attempt to dominate the time at which and the way in which he studies. In some cases the child may react against this effort of domination. Possibly his new liberty in attending school away from the parent's eye may play a role in his fight for freedom. He may be more concerned about resisting the parents' efforts to dominate him than about his success in learning to read. He wins his battle against parental domination by failing in reading.
6. *Apparent conflict in purpose or desire between parents or between parents and teacher.* The case briefly described on page 110 is an instance of the unfavorable effect which conflict between parents may have. Reading may sometimes suffer when a rather dominating or perhaps merely anxious parent comes into con-

flict with the teacher on one or another score. For example, in one instance, the parent was exceedingly critical of the teacher because she did not teach the letters of the alphabet and use letter-by-letter phonograms as her own first-grade teacher had done. The arguments between the teacher and the parents became quite sharp and the child was the victim of the conflict. In this case the child did not like the teacher very well and failed to learn to read. It is not proper to say that the pupil deliberately decided to fail to learn to read in order to prove that the mother was right. The dynamics of human behavior are very subtle and a child, or adult for that matter, may adopt a mode of action of this type without realizing why. In some way, however, the action that was taken produced a satisfying result. This is essentially true of most maladjustments.

8. *Sibling rivalries or other rivalries among children.* This type of maladjustment is illustrated in the case of a boy who refused to compete in reading when he found that his work was being compared unfavorably with the first-grade reading achievements of his sister during the preceding year. The pupil need not necessarily have come to the conclusion, "I won't do anything that that girl does so well"; he merely found that his self-esteem was maintained a little better when he minimized the importance of the work and simply left the field. The influence of sibling rivalries, as of every other of the causes mentioned above, may sometimes have quite the opposite effect. Instead of producing a reading failure it may produce reading excellence. For example, in another case, a boy redoubled his efforts to become a proficient reader when he heard frequent comments concerning how well his sister had done the preceding year. He seized upon reading as a means of showing his superiority. He need not have decided, "I'll do better than that girl if it kills me," or anything of the sort. The dynamic trend took the direction of direct attack upon the obstacle in a constructive way in this case.

It will have been noticed that many types of adjustment, good and bad, have been listed in the illustrations just given. The maladjustments found among reading disabilities do indeed occur in

numerous forms. The following is a list of the most common ones given in popular rather than technical terms:

1. *Nervousness*. Revealed by restlessness, squirming, or other obvious signs, including irritability or silliness. In some cases the nervousness exists with little obvious surface expression.
2. *Withdrawal, or "leaving the field."* The pupil may leave the field in such obvious ways as playing truant, or in less obvious ways, such as mere day-dreaming, failing to engage in the activity, or giving only superficial or occasional attention to the lessons. In some fashion the pupil refuses to launch himself heartily into the effort to learn.
3. *Aggressiveness*. The pupil may "try to get the teacher's goat" in some way. He may become mischievous, noisy, or bully other pupils.
4. *Defeatism*. The child merely feels discouraged. He feels hopeless about his prospects. He may, as we say, have the "feeling of inferiority."
5. *Chronic worry*. The pupil may continuously or frequently worry about himself or about his work in reading or about particular failures, as in an oral lesson or in tests and the like.

All these symptoms or forms appear among cases in which the maladjustment is the cause or the result or the concomitant of reading difficulty. It is not easy to tell whether a symptom is cause, effect, or concomitant, but it is advisable to use every reasonable means of discovering the role of the maladjustment.

Where the personality maladjustment is truly a cause of the reading difficulty, discovery and treatment of the maladjustment are helpful and sometimes indispensable for the improvement of reading. In some cases the only possible way of improving reading is to determine and remove the factors which have blocked the pupil's progress in reading.

Even in those cases in which it is impossible to remove the reading defect without appropriate psychotherapy—that is, without re-orienting the pupil toward reading—it may be found that this type of therapy is not alone sufficient. During a prolonged process of inadequate functioning in reading the pupil may have acquired

one or more inappropriate reading techniques. Even when the inhibiting motives are removed and he is eagerly on the trail of reading ability he may be unable to eliminate inappropriate techniques or to hit upon the most desirable types. Skillful guidance in reading itself may still be required. In these cases, then, a combination of psychotherapy and effective remedial instruction is needed to get the best results.

In some instances at least, special remedial work in reading itself may serve to reorient the pupil and to eliminate the misleading motives. The case of a child caught in a conflict between the teacher and a parent is an illustration. When this pupil was taken in hand by another person, a remedial reading specialist, the conflict was resolved for the reason that it had previously centered on the personal qualities and techniques used by the teacher. Under the reading specialist all motives were favorable and the child was able to apply himself without conflict and with relatively little tension. He succeeded in learning to read not primarily because of what the remedial teacher did in any precise way but merely because a shift to her removed the motivational blockings.

When a personality maladjustment is the result of failure in reading per se, it will usually disappear without special treatment if a clever teacher succeeds in teaching the pupil to read. Occasionally the resulting emotional or general maladjustment produced by reading failure becomes so well established as to require specific treatment after the pupil has learned to read. For example, although the pupil is now learning rapidly and doing beautiful work in oral reading situations he may still be subject to nervous tensions and a feeling of insecurity about his ability in the field. Even emphatic demonstrations of superiority may not alone enable him to throw off the shackles of the former emotional distress. In some cases, pupils of this type need special psychotherapy in order to enable them to achieve complete emotional control.

Misleading motives and purposes and unfortunate emotional adjustments of the types illustrated above may appear among all types of pupils. It should not, for example, be assumed that emotional resistance to learning to read is limited to emotionally unstable

References

pupils. Volitional maladjustments sufficient to block the progress in learning to read and to result in almost utter failure may and sometimes do appear in the case of children of high intellect, fine emotional balance, good health, and otherwise exceptionally good equipment. They are more likely to occur among the pupils more susceptible to emotional turmoil, but they are not to be regarded as necessary expressions of constitutional weakness, but rather as the consequences of unfortunate personal influences. The teacher should realize, moreover, that they can develop in home situations which superficially seem to offer everything that could be desired. They may spring from the attitudes of parents who, superficially viewed, seem to be models of good sense and discretion.

The psychiatrist, the clinical psychologist, and the school psychologist are the specialists in the field of disentangling such maladjustments and misleading motives and in providing helpful treatment or psychotherapy. Some cases are so intricate and subtle as to tax the ingenuity of the most expert clinical psychologist or psychiatrist. This fact should, however, not discourage the teacher from doing what she can to locate influences in the school or in the home which may be primarily responsible for difficulties in learning in reading and elsewhere. Some teachers have a natural knack for solving difficulties of this sort and all teachers can improve by practice and by studying some of the modern treatises on the subject.

References

Emmett A. Betts has specialized in the study of the visual and auditory defects of poor readers and his book, *Foundations of Reading Instruction*, American Book Company, New York, 1946, gives the most extensive and (at the time of writing) the most recent account of methods of diagnosis. See especially Chaps. XI, XII, XIII, and XVIII. Chapters X and XIII deal also with health, emotional adjustments, intelligence tests, and other topics treated in this chapter.

Inasmuch as the role of some of the factors treated in this chapter in causing reading difficulty is still uncertain, authorities disagree more or less about them. Views presented in other general texts on reading disability, listed in Appendix 1, Part A, should be considered.

A Survey of Intelligence, Vision, Hearing, and Other Factors

Helping Teachers Understand Children, prepared by the Staff of the Division on Child Development and Teacher Personnel and published by the American Council on Education, Washington, D. C., 1945, is excellent reading.

Exercises

1. Name three kinds of standardized intelligence tests. Under what circumstances is each useful in the diagnosis of reading difficulties? How may a child's mental grade be obtained?
2. How is the I.Q. obtained? What is the expected relationship between I.Q. and reading success? Why is the mental test score not a perfect indication of a child's likelihood to succeed in reading?
3. What is the reading grade score? What light may it throw on the causes of retardation in school subjects?
4. What is the value of an oral vocabulary test in reading diagnosis?
5. Discuss the influence of visual defects on reading progress as described in this text. Emphasize the point of view most useful to teachers.
6. Name a number of aspects of a child's appearance and behavior that may lead a teacher to suspect the presence of defective vision. Name and briefly describe two kinds of defective vision, difficult to detect, which are now thought to be causes of reading difficulty and poor attitudes toward reading.
7. Discuss the possible effect of color blindness upon reading progress.
8. What conclusions were drawn by Bond from his study of the relationship between poor hearing and poor reading? What differences in emphasis must be made in teaching reading to children with poor hearing?
9. Discuss the ways in which speech defects may hamper reading progress.
10. Why is knowledge of a child's physical condition important to the teacher of reading? What may be the unfortunate effects of absences from school upon reading progress?
11. Give two interpretations of the term "word blindness." Comment briefly on the use of this term.
12. Discuss the danger of attributing reading disability to "defective imagery."
13. What is the author's point of view about the influence of hand-eye dominance on learning to read? Is eye dominance the same as eye acuity? Make a test on yourself.

Exercises

14. Why is it inappropriate to say that nervous or emotional instability "causes" reading difficulty?
15. Give two instances of unsatisfactory classroom behavior that might be attributed to difficulty with reading. Discuss the influence of several different attitudes on the part of a teacher toward a child who is reading poorly. Discuss the influence of the possible attitudes of parents toward a child who is reading poorly.
16. To what extent may personality maladjustments be said to produce reading problems? Discuss the relative importance of psychotherapy and effective remedial instruction in dealing with reading difficulty.

chapter 5 General Characteristics of
Classroom Instruction and
Remedial Instruction

In the minds of many persons there is a sharp distinction between typical classroom instruction and remedial instruction. It is the purpose of this chapter to discuss the relationships of the usual types of classroom teaching and remedial teaching. No effort will be made to discuss particular teaching or remedial activities or exercises or devices but rather to consider the features which characterize all types of good teaching and good remedial work.

Classroom Instruction Compared with Remedial Instruction

The phrase "remedial instruction" implies that it is a process of teaching for the purpose of remedying some difficulty or deficiency. In current usage remedial instruction is the form of teaching under-

Classroom Instruction Compared with Remedial Instruction

taken to improve abilities in which diagnosis has revealed deficiency. Remedial teaching is thus intended to correct demonstrated weaknesses, to remove inappropriate habits, or to substitute a good technique for a poor one. Remedial instruction emphasizes administering to individual needs. For example, certain skills, such as those involved in working out the pronunciation of a word by giving the sounds of the individual letters and blending them, may be inadequately developed by one child, properly mastered by another, and so strongly emphasized by a third as to interfere with quick recognition. The first pupil may need further intensive training in using the letter-by-letter phonetic analysis, whereas the second may need no special instruction apart from that provided for the class as a whole, and the third may need guidance in the development of other techniques and in restricting the use of the more detailed analysis. Remedial instruction, then, is first and primarily individual prescription for individual needs.

Every specialist in reading, however, advocates the greatest possible adjustment of instruction to individual needs for all children. Teachers are accustomed to using a variety of devices for gaining insight into the abilities and difficulties of individual children and of organizing ordinary classroom activities to permit guidance in accordance with individual needs. As a general theory of teaching, therefore, there is no distinction between regular developmental classroom teaching and remedial instruction. The difference in practice is one of degree. In remedial instruction, individual differences in abilities and difficulties are sought more extensively and thoroughly and remedial instruction consists in setting up a program to permit the maximum intensity of specialization to meet individual needs.

Some persons are inclined to think of remedial instruction as individual work in which the teacher and one pupil work face to face. In such a situation very searching diagnosis of the individual's strengths and weaknesses and very precise teaching to adjust to his special needs are, of course, possible. However, the classroom teacher is urged to employ methods of subgrouping and other devices to enable her to do some individual intensive work with one pupil at

a time as part of the daily program. Here again the distinction between remedial instruction and first-rate classroom teaching is not a distinction of kind; it is one of degree.

Many teachers have the impression that in remedial instruction the materials are different from those used in the best classroom instruction. Their impression is that the content and organization of the materials are of a peculiar type called "remedial" materials. It is true that many organizations of materials advocated by reading specialists are very different from those used in the best classrooms. Some of them are very artificial in form, meager and restricted in content, and organized in highly artificial ways. In the opinion of the present writer these materials are distinctly inferior for all except exceedingly rare cases to the richer, more meaningful, more challenging, more normal content used by good teachers. It is the author's opinion that remedial instruction, with rare exceptions, would be more fruitful if the remedial materials were more like, indeed even better than, those used in the best classroom practice in such respects as interest-provoking qualities, educative values, and general utility in content. Indeed, in the author's opinion, where a need for intensive individual remedial work exists, it is of unusual importance to secure the highest possible levels of quality in form and content of the materials.

It is sometimes assumed that remedial instruction is based upon unusual, novel devices, practice exercises, and stunts of the type often disapproved for classroom usage. Many of the artificial and unusual devices used in remedial reading are the results of work of specialists such as psychologists, ophthalmologists, and psychiatrists who do not have a full understanding of modern educational methods and objectives. Some of the teaching devices found in remedial programs may be properly recognized as thoroughly unsatisfactory devices and quite inadequate teaching methods. The remarkable thing about many types of remedial work is that they succeed despite exceedingly poor materials and techniques. With rare exceptions the best methods and devices used in classroom teaching are the best possible ones to employ in remedial work. Indeed precisely because remedial instruction is typically given to the

pupils who have the greatest difficulties, the need for the richest, best, and most effective materials and devices is particularly acute. Due to the fact that remedial instruction often represents an emergency measure there has been a disposition to feel that a form of teaching radically different in type and intent from that employed in the schoolroom is desirable. The objectives sought in remedial teaching are substantially those which every good teacher seeks to achieve in her individual and group work in the classroom. She wishes to build up a high level of skill and interest in reading. She desires to give her pupils a well-rounded assortment of techniques and versatility in using them to meet particular needs. She aims to develop proficiency in such techniques and abilities as those outlined in Chap. 2.

Remedial teaching should follow the same general principles that are or should be observed in any other type of instruction. There are instances in which it may be advisable to use apparently different methods or devices in remedial work. When, for example, a pupil has failed after a prolonged period of work with one kind of practice material or one type of oral device an apparent change may be advisable lest the pupil conclude, "Well, this is the same old thing and I will fail again as before." The variations, however, should represent equally good, if possible better, embodiments of the same general principles. It would be a serious mistake to shift from a moderately good teaching procedure to a much poorer one just to be different, when there is plenty of opportunity to choose sufficiently different procedures which are as good as or better than the one originally used. These variations represent not contradictions of the main principles of teaching but special applications of them which require unusual skill and understanding. In many instances they can and should represent a modification designed to provide more exact adjustment to individual needs. The general characteristics of good remedial treatment are precisely the same as the general features of good classroom procedure.

It may be said that, in general, a person should be suspicious of any form of remedial teaching which is highly artificial, unnatural, and which utilizes narrow, barren content, or artificial gadgets,

mechanisms, stunts, and devices. There may be instances in which good teaching materials and methods may be embodied in an unusual form. There is no objection to novelty per se. Indeed, in many instances, an apparently new organization may have special merit. Novelty, in organization or in apparatus or in procedure, however, is not alone sufficient. It is imperative that in appraising remedial procedures the teacher examine below the surface to determine precisely what type of activity the pupil is learning and the merits of the content itself. The remedial program should contribute to enrichment of ideas, the enjoyment of stories, and other forms of content, the development of information of educational value, the cultivation of artistic, constructive, and other abilities, and should in other ways meet the broad objectives of the normal teaching program.

Choice and Organization of Materials for Remedial Work

In choosing and organizing materials for remedial work in reading six points should be borne in mind:

1. *The material should be highly interesting to the pupil.* A first requirement of remedial work is that the pupil's interest be captured. Of the several factors which contribute to the pupil's interest in the program as a whole, an important one is interest in the reading content. The remedial teacher should, therefore, by talking to the pupil and his teacher and by trying out samples of material through oral reading, attempt to discover the types of material which make the greatest appeal.

In this respect, the writer's opinion differs from the opinions embodied in certain programs of formal training in which the desired skills are sought by what are considered the most direct means, irrespective of content, on the assumption that if the pupil can be drilled into ability to read, interest will take care of itself. While it is quite true that developing ability is often sufficient to arouse interest, there are times when a spark of interest must be activated before the pupil can be aroused sufficiently to make continuous effort to learn to read.

Choice and Organization of Materials for Remedial Work

2. *Materials of outstanding popularity among children should be chosen.* Although, as indicated in the preceding section, interest in learning to read can be increased by capitalizing upon a unique or special interest of the individual child, it is not necessary, as has occasionally been contended, to limit all remedial instruction to one topic or area. It is no more necessary or no more desirable to do this in remedial work than in classroom teaching. It is desirable in both cases to make available to the child a generous amount of reading matter which has proved to be of outstanding interest. Dull, monotonous, uninspiring material should be replaced by selections embodying high comedy, adventure, and other challenging content. Indeed, the fact that the pupil has had special difficulty and is likely to be somewhat resistant to learning makes it even more important in the remedial instruction to have the highest possible proportion of the most thrilling, humorous, and otherwise satisfying content. The notion sometimes encountered that remedial materials may be confined to poorly written, uninviting content so long as it is within the pupil's field of major interest and embodies the proper repetition of words and other mechanical features, is entirely unjustified. It may take ingenuity to adapt the most outstanding examples of children's literature to the technical needs of the remedial work but it can and should be done. The good remedial teacher has at hand a large stock of the most entrancing materials and has ability to work many of them into the remedial program.
3. *The materials should be of proper difficulty.* Pupils suffering from difficulties in reading have nearly always spent much time struggling with materials too difficult for them to read. It is of utmost importance that remedial work be conducted with material within the pupil's range of mastery. In the case of non-readers or seriously retarded pupils, it may be difficult to secure material which is both of intrinsic interest and sufficiently easy. Within recent years, great progress has been made, however, in the writing of substantial and interest-provoking selections within the limits of a small vocabulary. Some of the organized

systems in which readers are combined with preparatory or workbooks, both based upon the same vocabulary, are highly satisfactory for remedial instruction. In many instances, pupils may become highly interested in such books several grades below those corresponding to their chronological or mental-grade level. In other cases, additional activities or additional workbooks may be developed to prepare for and supplement books in which pupils are likely to show strong interest. By means of selection and supplementation, the materials as a whole must be made easier until a vocabulary burden is achieved which the pupil can carry. To enable the pupil to succeed as soon as possible in really doing full-fledged reading is one of the requirements of remedial instruction. To achieve this result, the materials must be easy to understand and must comprise a vocabulary relatively light for the particular pupil.

4. *The materials should be of various types.* In remedial instruction one usually has to deal with the type of pupil who has found his classroom selections difficult, long, and boring. In the first lessons in remedial work, even if they are highly successful, the time required to cover a given selection will be greater than that required by the able pupil, and the work is likely to be fatiguing. Many remedial cases are conspicuously prone to boredom in reading in any circumstances. Hence, the selections should be relatively short as well as easy, and should be varied in character. The ideal is to have a series of selections of different types, each written largely within the limits of the same vocabulary. Thus, the pupil is enabled to read stories of different types—humorous material, informative selections, directions to be executed in different ways, verse, problems of different sorts, instructions to be carried out in various types of projects, comprehension exercises of several forms, various questions to be considered, and so on. As different topics, types of materials, and forms of correlated activities are tried out, the teacher can discover which ones are most, and which ones least enjoyed, and the proportions can be varied accordingly in later work. Over a period of time, all types should be sampled.

5. *An abundance of easy reading should be provided as a substitute for review.* The pupils who have had difficulty with some aspect of reading will usually need more review than the others. It is dangerous, however, to require a large amount of formal review, since mere *re-view*, without motivating incentives or purposes, will increase their distaste for reading. These pupils are usually already surfeited with review that has been conducted during and after school hours. Instead of such work, they should be given additional experiences on the same level, but with varied types, content, and purposes, as have been suggested above. In many instances, the teacher may need to make up much supplementary material herself. Another device is to develop incentives which make rereading purposeful and zestful. Thus, a series of thought-provoking comprehension questions may arouse a pupil's interest in rereading the material to find the substance bearing on a particular problem. Disagreement with another pupil or the teacher concerning the correct solution of a comprehension exercise may motivate rereading "to find out." Again, various new projects—such as making up a series of comprehension exercises for another pupil, selecting characters and episodes for a play, or a series of illustrations to be drawn and colored or sentences to combine into a summary—may be developed, which make rereading seem interesting and purposeful. Finally, the teacher should be able to supply additional selections which will carry the pupil on by as easily graded stages as may be desired. Familiarity with a wide variety of the best available materials for children's reading and skill in writing suitable materials when other resources fail, are assets in a remedial teacher.
6. *The teacher should help the pupil develop the need for reading.* Many children are poor readers chiefly for the reason that they have actually done very little reading except what they have been required to do in school. This is true of many children who have met the challenge of the initial stages of reading and acquired reasonably good reading ability in the first and second grades. Some children develop emotional resistance to reading

when the task in school has been largely a rather arduous study-type of reading. In out-of-school hours they have spent their time in playing, working, talking, attending the movies, and listening to the radio. They have found it possible to get along comfortably and enjoyably without reading. In many cases the home provides few, if any, incentives. Other members of the family may read very little and spend their time talking and listening to the radio. The home may contain little reading matter attractive to children. These pupils gradually fall behind the normal reading development from lack of practice. The lack of practice comes from lack of incentive or need. They really have found little or no insistent need for reading.

In such cases as these a major task in remedial reading (and in ordinary reading teaching as well) is that of trying to modify the pupil's life pattern in such a way that reading will serve a need in a highly satisfying way. The exact steps to take to achieve this end will differ with different children. In most cases finding highly interesting material which can be easily read is one step. Finding easy material which makes a contribution over and beyond that easily secured from the radio or other sources is another. Providing an opportunity for enjoyable free reading in the school may be a valuable step. Fuller returns will be secured if equally attractive provisions are made in the home. This may mean enlisting the services of parents to subscribe to attractive children's magazines, purchase interesting books, or secure them from public or private libraries. In some instances it may mean budgeting a particular time for reading. For example, the whole family may agree that at a certain time each evening everyone will read. The pupil is likely to join in with the family plan, especially if the parents make available challenging and interesting reading matter. In later pages suggestions will be given for making reading fill a greater need by providing opportunities for tangible use of the results of reading in the school and in the home.

Management of the Remedial Instruction

Remedial instruction should be properly scheduled. One of the most serious defects of much remedial work is to be found in the lack of a proper program. When the remedial instruction is offered a bit now and a bit then at odd moments, it can hardly be highly effective. Deficiency in reading is serious enough to justify giving the remedial treatment a definite and preferred place in the daily program. The time usually spent in regular reading instruction should be utilized if possible. Additional periods should also be provided. A careful study of the pupil's attainments in other subjects and his schedule for other activities should be made to ascertain the most suitable periods for additional work. Some of the time customarily spent in activities in which the pupil is well advanced or which are of relatively little importance may be devoted to instruction in reading. In formulating such a program the following cautions should be observed:

1. *Remedial instruction should not be substituted for enjoyable activities.* It is of first importance to be certain that the remedial instruction does not result in depriving the pupil of highly cherished activities. For example, the pupil should not be deprived of recess time or of school activities which he especially enjoys. To do so is likely to arouse his resentment at once. A resentful pupil is not a good subject for instruction. Everything possible should be done to make the new program more enjoyable than the one it replaces.
2. *Remedial instruction should be managed so as not to classify the pupil in an embarrassing way.* It is highly important to arrange the program and designate the periods and methods of remedial reading instruction in such a way as not to imply, or let other pupils feel, that a penalty is being applied. Pupils undertaking remedial work should not be classed as failures, "dumbbells," or commented upon as having to stay after school for punishment. One clever remedial teacher usually seizes upon some meritorious achievement of several pupils, among whom are those who are scheduled for remedial work, and offers as a

reward a revised program for each. Thus, the programs for some very able readers as well as the poor ones are rearranged at the same time. In some cases, the very able readers follow a program essentially the same as that of the remedial cases, except that the former do advanced work on more difficult material. In some cases, the teacher arranges for all the children a program including several periods for individual or small-group enterprises of which the remedial work in reading is one. Thus the exercise of a little ingenuity may result in making the remedial program socially acceptable.

3. *The time allowance for remedial work should be generous.* If a pupil is seriously deficient in reading, abundant time should be provided for remedial instruction and for reading experience. To assume that a few minutes of drill now and then will suffice is quite unsafe. Cases that bring to the work inappropriate techniques, well habituated, and a history of boredom and distaste for reading are not corrected by a limited amount of effort. For the really serious cases, provision should be made for systematic instruction and for experience with the remedial materials *several times every day*. More than that, the pupils should be provided with opportunities to have carefully arranged reading experiences during as much of the remainder of the day as possible. Indeed, the best remedial work provides not only the definite instructional periods, but a whole program including activities in other subjects worked out around reading as a center. This, in its ideal form, includes the use of many exercises and directions in self-manageable form, supplementary materials of suitable difficulty for use in connection with other subjects, free reading of library materials, and opportunities to do enjoyable reading at home or elsewhere in out-of-school hours.

It should be recalled that we are now considering the pupil whose deficiency is serious and who has much ground to cover before he can read as well as he should. At the other extreme are pupils for whom one brisk remedial exercise a day in addition to the regular work is sufficient. But these pupils also should be provided with opportunities for much additional experience in reading. The remedial

instruction and the teacher-directed practice should give birth to the essential techniques which must be developed into flourishing health and vigor through extensive, varied, and zestful reading experience.

4. *The teacher should have sufficient time to arrange and supervise the remedial work.* Progressive schools are rapidly coming to realize that the costs and deprivations to both the pupil and the teacher of backwardness in reading are so great as to make adequate provision for prompt and effective remedial work an obvious economy. In such schools the teacher who discovers the need of instruction is either provided with a specialist in this work or with some assistance in her other work to enable her to formulate and carry out a thorough program. When such assistance is not available, the teacher should try to schedule her program, to utilize self-directive materials, to provide special educative projects which permit abler pupils to be of assistance in conducting class activities, and in other ways to conserve some time for the needs of the poor readers. Such activities as looking up material for and assisting the remedial cases in their projects, reading with them, giving them special suggestions or techniques, are often more educative to the abler pupils than strictly private enterprises would be. The poor reader requires for a time very careful and intelligent supervision, and he should have it!
5. *Remedial work may be either individual or cooperative.* Remedial work demands that much attention be given to the individual case. This does not mean, however, that the pupil who is deficient in reading must do all his work apart from other pupils. Indeed, there are certain advantages in having several pupils work together at times. As suggested above, the program should include periods devoted to individual instruction and check-up, alternating with periods of work of a self-manageable character done on materials which the pupil, because of familiarity with the vocabulary and subject matter, is prepared to handle with little or no help. While the teacher is devoting herself to one pupil, the others may be doing independent or cooperative work.

Cooperative enterprises may be developed by having a small group work upon the same general topic. The pupils may be reading different selections, some much easier than others, but the common interest provides an incentive for reading choice bits aloud to each other, giving oral reports, and engaging in various related enterprises, such as searching the files of the library, visiting a museum, making posters, developing bulletin-board announcements, making a picture book, constructing objects, decorating the room, and so on. All these cooperative enterprises are made more workable by utilizing generous amounts of self-manageable materials related to a topic which lends itself readily to correlated activities and projects. Examples of such materials will be given in later chapters.

It is impossible to state definitely how many remedial cases a teacher should attempt to handle at once. The number will vary with the teacher's ability in the remedial field, the nature of the pupils' difficulties, their general competence and self-educative ability, the nature and amount of available instructional material, and many other factors. It is necessary, however, that the teacher have plenty of time to devote to the special needs of the individual case. Remedial instruction should not be primarily mass teaching. The serious reading case absolutely must have a generous amount of individual instruction.

6. *Remedial work should be begun at a favorable time.* The first meetings for individual remedial instruction are very important ones. The work should be started under favorable conditions. The pupil should not be tired. His mental attitude should be favorable; he should be caught in a cheerful and cooperative mood. He should not be in a state of readiness for some other attractive activity. The teacher should exercise ingenuity to establish a happy relation with him and to arouse his confidence and optimism. It is imperative that the first meetings develop in the pupil a feeling that the teacher is a good sort and that she will surely succeed in helping him out of his difficulty. Many remedial teachers make a practice of observing each case several times in the classroom before seeing him alone, and then of having

several pleasant informal meetings with him before the reading problem is touched upon. In this way the remedial teacher finds out how best to get the child's interest and cooperation.

7. *Successes should be emphasized in remedial work.* For the pupil who appears for remedial work, reading has probably meant a long succession of difficulties and failures. He will probably be discouraged if not downright hopeless. Part of the strategy of remedial work is to shift the emphasis from failure to success. It is important to select and manage the first lesson so that something positive will be accomplished. The successful accomplishments should be featured and the difficulties disregarded. This policy, indeed, should be pursued throughout the work. Difficulties can be recognized and dealt with without implying failure or incompetence. Achievements worthy of recognition as successes can always be found even when the pupil has fallen far short of a perfect performance as a whole. To develop a taste of success after prolonged failure is one of the devices which ensures continued success.
8. *Improvement should be measured and the record shown.* In remedial instruction it is highly important not only to make the pupil's progress possible, but also to make clear to the learner the improvement he has achieved. He needs both the teacher's assurance that he is getting on and objective evidence of improvement. Better than vague assurance is a definite, intelligible expression of the amount of advancement. For these reasons one may often use in remedial work devices for demonstrating a pupil's achievement each day and thereby make possible a convincing expression of progress. The daily achievements may be recorded in graphic or other form so as to indicate the curve of improvement. The statement "Nothing succeeds like success" should, perhaps, be changed to "Nothing succeeds like observed success."
9. *The pupil's particular errors and successes should be detected.* The devices for appraising achievement and progress should be sufficiently definite, furthermore, to reveal the particular successes and errors made in daily work. The teacher may utilize

such records as means of further diagnosis, of discovering in what particulars the pupil errs and requires further experience. The pupils themselves may be taught to check their own errors and to seek for their causes. A child can recognize his errors without feeling that he is failing in general. The obscurity which, from their point of view, surrounds the efforts of young learners is not infrequently one cause of loss of interest in improving. To have their successes and errors become apparent is often a means of arousing interest and of inspiring effort to understand and correct defects.

In many cases, the teacher can help the pupil effectively by discussing with him the nature of his difficulties. Children who have had trouble in reading have sometimes overheard discouraging, if not terrifying, explanations or terms—have caught such expressions as “word-blindness,” “moron,” “laziness,” “brain injury,” “something wrong with his mind,” and so on. As a result a pupil may harbor insidious impressions of which his teacher is unaware. To explain the facts, pointing out that the difficulties are merely matters of incorrect knack that the pupil has acquired just as one might develop wrong methods of handling a baseball bat or of diving, may result not only in helpful insight, but also in a vastly improved emotional adjustment. Indeed, most of the tricks of the business of reading can be explained to the normal child to his advantage. To be a skillful remedial teacher, one must learn the possibilities and difficulties of explaining things to the pupil.

10. *The teacher's attitude should be optimistic and encouraging.*

Encouragement and cheerful assistance may frequently be needed. Children of the type most likely to be in need of remedial treatment are notably susceptible to “off days” and to periods of apparent or real stagnation in interest. At such times they should realize that the most skilled baseball players, golfers, composers, artists, and others are subject to the very same difficulties—that even to the seasoned expert such periods come at times. Indeed, it is not at all improbable that disabilities in and distaste for many activities among children originate in the throes of such “plateaus” in the curve of learning. It is, there-

fore, important that the teacher detect such crises and that she deal with the child at these times with greatest skill and tact.

11. *The teacher should help the pupil avoid overanxiety and unduly extreme effort.* A common mistake in dealing with pupils who have had great difficulty in reading, especially the reading failure, is to assume that they have failed because they have not tried hard enough. Except for certain cases of misleading motivation discussed in the preceding chapter this is a very rare characteristic. Children are much more frequently trying too hard than not trying hard enough. They are more typically overly anxious and prone to exert themselves to a point of tension and distraction. In many cases the pupil shows a tendency to shift from extreme effort to refusal to work. For example, if a child applies himself with intense effort but fails to master the assignment he may react by falling into a period of discouragement in which he really refuses to try. After a long period of frustration a pupil's emotional adjustment in the reading situation is likely to be tense, or flighty, or both, at times. Much of the success of the instruction depends upon the teacher's ability to get the pupil into a favorable emotional attitude.

An ideal attitude is one of almost carefree, zestful action characteristic of a pupil in some enjoyable game. Attempts of the child deliberately to arouse himself to an intense pitch of determination, the much applauded do-or-die attitude, are likely to do more harm than good. Trying too hard is often one of the main obstacles to learning. Dr. Fernald, who has spent a lifetime teaching nonreaders to read, states, "In all these cases conscious effort to do well resulted in a decrease in efficiency." Efforts to increase the intensity of the work are likely only to produce tension. A free, confident, "Isn't this fun?" attitude is the one in which individuals learn most effectively. Unfortunately, this is a fact which many parents and teachers do not believe.

To get the pupil into a favorable learning attitude and to keep him there the teacher must exercise continued caution. She must avoid becoming tense and discouraged herself. She must avoid letting the child sense any anxiety even if she feels it. She must beware

of urging him to extreme effort. She must avoid giving the appearance of checking up on the pupil too rigorously. At least she must avoid giving any expression of disapproval or concern over his errors. Even adults can be disturbed when others follow their every move in adding up a bridge score or in reading a bit of verse. Poor readers usually develop undue sensitivity because of many unfortunate experiences resulting from their blunders in the past. It would be undesirable to introduce undue tension into the reading activity even if it should foster learning—which it does not. The reason for this is that the tension might persist as part of the reading process after the pupil has become a proficient reader, with the result that every time he engaged in reading he would be wasting his energy through emotional tensions, as many of us do when we talk before an audience.

12. *Practice should be so distributed as to avoid fatigue and boredom.* Care should be exercised not to permit the remedial lessons to continue at any one time to the point of fatigue or boredom. Several short periods of lively work are superior to an equal total time devoted to continuous study. Although the optimum length of the remedial lesson varies so greatly with the age, interest, strength, freshness, and stability of the pupil and with the character of the practice that no single guiding rule can be offered, the teacher may, by carefully observing signs of waning zeal, acquire good judgment in deciding when a lesson has run its fruitful course.

13. *A variety of exercises and activities should be provided.* Fatigue and loss of zeal in remedial work may result from prolonged use of the same type of material and device and, contrariwise, interest and application may be preserved by variety. Since in remedial instruction the pupils are engaged in mastering skills that have proved troublesome, they are more likely to tire quickly than in other types of work. The need for variety in content, activities, exercises, and checks is therefore especially great. Projects which require much accurate reading, such as reading coupled with comprehension checks which take the form of selecting, drawing, or coloring illustrations, the use of

puzzle paragraphs to be solved, or of individual and group competitive games in which the reading is realistic and abundant are types of activities that may often be enlisted to increase interest. Indeed, it would be desirable to have for each specific purpose a sufficient variety of remedial devices to make it possible to provide the pupil with a choice.

14. *A plan should be dropped when it fails to produce results after a fair trial.* The preceding statement is obviously trite. It is nevertheless true that while remedial instruction of a given type is sometimes dropped too soon, it may be continued too long. The teacher must always be critical, as skillful physicians are, both of her diagnosis and of her remedial treatment. One type of treatment will be highly successful with one pupil but will fail to help another who seems to have substantially the same difficulty. The teacher must constantly, while teaching, diagnose the pupil's difficulty and his reaction to the instruction. She should experiment skillfully with different explanations, demonstrations, instructions, and related devices. While it is hazardous to attempt to state any general rule about changing instruction, it is a rare case which should not, in three or four weeks, show pronounced improvement from daily instruction. One should be very suspicious of the diagnosis or the remedial program or both if the pupil does not show a marked gain in this time.
15. *Individual supervision should be continued until the pupil has his improved techniques well habituated.* Individual remedial instruction frequently produces remarkably rapid growth of reading skill. The teacher should remember, however, that it takes time to habituate quite new techniques. The teacher can probably recall experiences of her own in adapting a new method of writing, typewriting, pronouncing words, swimming, or what not, in which the old habits were likely to pop up in moments of fatigue or tension or relaxed attention. Pupils are prone to relapses to the older bad habits or to a state of discouragement. It is therefore advisable for the teacher to continue to keep the pupil's reading under supervision until she is

quite certain that he is safely established in the better methods. A relapse in reading, as in disease, is very discouraging to the patient.

16. *The pupil must be induced to read widely in order to ensure further growth in reading.* A mistake sometimes made is to assume that reading ability is a kind of special technique which once built up in intensive remedial work will take care of itself in all future reading situations. Superior readers are typically persons who read more than the average. Skill in reading is like skill in singing, playing the piano, painting pictures, and doing other subtle artistic acts. To achieve high levels requires continuously spending much time in the activity. Two children of equal reading and other abilities at the beginning of the third grade are likely to differ widely in reading ability a few years later if one does a great deal more reading than the other. No child is likely to continue to grow in reading ability or to maintain a high level of proficiency if his reading is confined to the necessary assignments in school. Reading ability can be carried forward only on the basis of the full school program supplemented by considerable free reading for the fun of it and for other purposes in out-of-school hours. The remedial case brought to a relatively high point by an intensive program will fail to keep pace with his companions, indeed is likely to retrogress, if his total volume of zestful reading in the future falls short of that of his classmates.

References

The topics introduced in this chapter are especially well treated in the following books:

- Betts, Emmett A., *Foundations of Reading Instruction*, American Book Company, New York, 1946, especially pp. 1-114, 438-488.
Durrell, Donald D., *Improvement of Basic Reading Abilities*, World Book Company, Yonkers-on-Hudson, New York, 1940, Chap. I.
Gans, Roma, *Guiding Children's Reading Through Experiences*, Teachers College, Columbia University, New York, 1941.

Exercises

Newer Practices in Reading in the Elementary School, Seventeenth Year-book of the Department of Elementary School Principals, National Education Association, Washington, D. C., 1938.

Witty, Paul A., and David Kopel, *Reading and the Educative Process*, Ginn & Company, Boston, 1939.

Other excellent discussions will be found in the books listed in Appendix 1.

Exercises

1. Describe the functions of group and individual instruction in the remedial reading program.
2. Describe the characteristics of good remedial reading materials.
3. What motivations should be sought for children participating in a remedial reading program?
4. What is the most important consideration in choosing the level of difficulty at which a remedial program is to begin?
5. Discuss the necessity and uses of variety in remedial reading materials.
6. How should review be conducted in the remedial reading program?
7. How long should remedial instruction be continued? How intensive should it be?
8. What pitfalls should be avoided in planning a remedial program which is to run concurrently with the usual grade program?
9. What qualities in the relationship between teacher and pupil are essential to the success of a remedial reading program? Mention some ways in which such a relationship may be built up.
10. Describe in detail the good teacher's attitude toward fluctuations in the child's reading progress.
11. Suggest materials and devices that will help a child to evaluate his reading progress constructively.
12. What is the most desirable atmosphere for conducting remedial reading activities? What attitudes on the part of the child may interfere with his ability to learn?
13. Discuss the importance of motivating reading at home and in other situations outside the school. Suggest some ways in which this motivation may be supplied.

Diagnosis and Instruction in the Prereading Period

IN Chap. 2 it was pointed out that children acquire many types of information, abilities, and interests which play a vital role in reading before the time of undertaking to learn to read. In fact, they begin to learn important things in infancy. Their ability to learn to read in the initial lessons depends greatly on the amount and kind of their learning during all the previous years. It is now a common practice in progressive schools to appraise the pupil's "readiness" for reading before the first lessons in reading are undertaken. The teacher attempts to discover what children are ready for learning to read successfully at some time before the normal beginning period and to provide special programs for developing reading readiness in the case of those who are deficient in one or several respects. In schools in which children enter for the first time in Grade 1 the reading readiness program is begun at once and appraisal of the pupil's status is made during the early

Diagnosis of Reading Readiness

weeks of school. In many schools the pupil's readiness for reading is sized up in the kindergarten and the entire kindergarten program is arranged to provide experiences for developing reading readiness before the first grade.

Diagnosis of Reading Readiness

Tests and appraisals of reading readiness are now becoming numerous and widely used. Some years ago reading readiness was sometimes regarded as a special form or expression of general maturity. The reading readiness tests were typically few in number and tended to resemble some of the group intelligence tests. They were often supplemented by general appraisals of social, emotional, or other types of maturity. Precisely what the test measured was not always very clear to the user. They appeared to measure something rather general and similar to general intelligence but presumably differing in some not very definite way. Some of the appraisals of maturity, although based on selected types of behavior, were also not very clearly analyzed. Reading readiness was therefore not infrequently regarded by teachers as a somewhat mysterious something or other which children had to have in a certain degree in order to assure success in learning to read.

As far as the author knows, the first systematic and analytical study of reading readiness testing was made by Deputy¹ and published in 1930. This investigation has been followed up by many studies which have shed much light on the characteristics and essential constituents in reading readiness. It is now obvious that reading readiness depends upon certain general factors, such as intelligence or verbal aptitude and visual efficiency which influence reading at all stages. The determination of reading readiness is a process of testing or otherwise appraising those general factors which should be taken into account in diagnosing reading abilities at any stage. Appraising reading readiness also requires diagnosing those strengths and weaknesses in the form of information, interest, and

¹ Deputy, E. C., *Predicting First Grade Reading Achievement*, Teachers College Contributions to Education No. 426, Teachers College, Columbia University, New York, 1930.

skill essential to learning to read at the initial stage. Many of these are the same factors which are diagnosed at a higher level in the third or sixth grade. Some of the reading abilities diagnosed at this stage would not be considered among older children, except the very retarded readers. Similarly, at later stages abilities and techniques not involved in the beginning reading activities would need to be investigated. The appraisal of reading readiness even before the pupil begins to read, however, is in a general way exactly the same as diagnosing and appraising reading ability and difficulty at any later stage.

Before the child actually begins to learn to read his status should be determined in the following respects:

1. Intelligence or verbal aptitude.
2. Vision
3. Color blindness.
4. Hearing.
5. Handedness.
6. Speech.
7. Health and vigor.
8. Emotional stability.

The significance of these several characteristics was discussed in Chap. 4. In that chapter, suggestions for tests or appraisals of these characteristics were given. In this chapter are added merely a few considerations of special importance at the prereading and the beginning reading stage.

Intelligence. The results of the individual test of the type of the Revised Stanford-Binet are particularly useful at this time. However, there are available a number of very useful group tests of intelligence, such as the Pintner-Cunningham, which can be administered by the classroom teacher. In the beginning stage of reading as elsewhere the higher the I.Q. the greater the likelihood that the child will learn to read with ease. Children with I.Q.'s below 80 on the average find learning to read a difficult and slow process. The low normal group, ranging from 80 to 90, are somewhat slower and more prone to difficulties and failure than those in

the range from 90 to 110. In general, the correlation between success in reading and the intelligence quotient is fairly high. A number of studies have been made to determine the desirable or necessary minimum mental age for learning to read. This was a sensible enterprise because the mental age indicates not only the level at which the pupil's intelligence, experience, and linguistic or verbal intelligence operates but it also indicates reasonably well the amount of general information and the level of verbal understanding which the child has acquired. It has been found that it is impossible to designate the optimum mental age for all children in all kinds of programs with all kinds of teachers. Some programs in beginning reading are definitely more difficult than others and some teachers are clearly more skilled than others in teaching at the beginning stage. Consequently, it is found that in one classroom a desirable mental age for the beginner might be as high as six years and nine months—in very rare instances even higher—whereas in another it might be six years, five months, or six years and in very infrequent instances even lower.¹

To secure best results, it is obviously necessary, therefore, for the individual teacher to find out the optimum Mental Age needed for successful work in her own class. In general, it may be assumed that a very considerable risk is encountered by introducing the child to formal instruction in reading before his mental age is six years or somewhat higher. A conservative figure would be six years and four months. A number of persons recommend an even higher figure, about six and a half years.

The intelligence test does not predict perfectly success in beginning to read. The other factors previously mentioned that will be considered presently must also be taken into account. Particularly valuable are some of the newer types of reading readiness tests. Some of these batteries of tests taken as a whole indicate more clearly the pupil's readiness for reading than does the intelligence test. In an ideal situation the teacher will have the results of an intelligence test

¹ Gates, Arthur I., "The Necessary Mental Age for Beginning Reading," *Elementary School Journal*, March, 1937, pp. 497-508.

and of a good series of reading readiness tests combined with informal appraisals of certain abilities and interests to be outlined presently.

Vision, Hearing. As suggested in Chap. 4, it is important to have good diagnoses of vision, hearing, speech, emotional stability, and other similar related factors at the prereading stage. The reason for this is that the beginning stage is a particularly critical and difficult one. The eye work done by a child in the beginning stages of reading is more complicated and less well organized than later and the need for clear vision is, therefore, more important. Because of the large amount of oral work typically done and the child's inexperience in speaking before a group, defects in speech are likely to be more embarrassing at this stage than later. During this period the foundation for phonetic analysis must be established and that may require the pupil to exercise very sharp discrimination of word sounds. Good hearing is necessary for success in ear training. The initial stages of reading, especially for the child whose aptitude for learning to read is not of the highest level, are fraught with possibilities of emotional disturbances and embarrassments. The nervous child should, therefore, be recognized and special precautions taken to avoid emotional upset. Indeed, in general it may be said that the need for careful testing and appraisal at the prereading stage is quite as great as the need for diagnosis and remedial work in the case of children who have encountered serious difficulty at a later stage. Indeed, a careful appraisal of the pupil's equipment and intelligent use of the results at the initial stage may be the means of preventing many difficulties and failures.

Appraising and Improving Other Abilities at the Prereading Stage

The *Gates Reading Readiness Tests* comprise a series of objective standardized examinations for a number of the most important abilities involved in learning to read. These tests were described in Chap. 3. These tests do not, however, provide an appraisal for all the important prerequisites of learning to read, some of which may

be judged by the teacher on the basis of her observations of the children after they have entered school. In this section we shall discuss some of the abilities and interests that should be taken into account and give certain suggestions for improving them.

The Child's Adjustment to the School Situation. A pupil's success in learning to read will depend in considerable measure upon the effectiveness of his adjustment to the school situation and the activities carried on in it. The child who is well adjusted, who feels at home, who is able and disposed to participate eagerly, who understands the schedule and the various activities, has a great advantage over the child who is less well adjusted. The child who has not become accustomed to the presence of other children and the school routine, who feels insecure, who is readily distracted by various irrelevant factors, who has difficulty keeping his mind on what is going on, is seriously handicapped. One of the first things to size up is the degree to which the child is able to participate fruitfully in the activities of the classroom, and one of the first things to attempt to improve is the adjustment of those children who do not feel at home. First of all, the teacher must attempt to get the child favorably adjusted to herself. If the child feels confident in the teacher's presence, can talk to her without emotional tension, can understand her clearly, and is favorably disposed toward her, he is much more likely to profit richly from her instruction. Suggestions for establishing the most fruitful relationships with the individual child were made in Chap. 5 in connection with the discussion of desirable characteristics in the teaching situation.

For some children, entering into the schoolroom represents a radical change. The child must become accustomed to the absence of his parents and brothers and sisters, and he may also miss the home routine in which, in many cases, he has been the center of attention. He may have difficulty adjusting himself to the restrictions imposed even by a liberal school program. This is particularly true of those who have been able to do as they please at home. The pupil must learn how to get along without the undivided attention of the adults in the group. He must learn that there are certain rules that must be respected and a certain routine that must be followed. The

teacher should explain the school program and offer help and suggestions to children who are slow in making a happy adjustment.

Learning to live in a large group of children may present difficulties for some children for whom this is quite a new experience. The teacher may have to help many pupils learn how to behave in a group, how to listen when others are talking, how to avoid interrupting, how to avoid mind-wandering, how to become accustomed to the many noises and distractions that are certain to arise. The daily conference or conversation period, beginning in some cases in small groups, may be effectively used. Group games represent another useful introduction. The program should make ample provision for activities which develop group thinking and working, such as telling stories, caring for plants and animals, straightening up the room, developing projects and enterprises, and playing a variety of group games.

The children must learn how to get along and make effective use of many types of equipment in the school. It is not advisable to introduce such a difficult type of learning as reading until the pupils are well adjusted to the life in the school and have learned to study by themselves in the classroom, to participate in small group activities and in whole class projects. They must have learned to pay attention, to note and remember what the teacher says, and to maintain zestful application to the classroom activity for periods of time as long as those usually taken for typical reading lessons.

Ability to Use Classroom Equipment. When a child enters school for the first time he will encounter many things with which he is unfamiliar. The schoolroom desk, some of the tables and cabinets, the blackboards, charts, and other classroom equipment may be entirely novel to him. Part of the process of learning to feel at home will consist in learning what these different types of apparatus are for and how to use them.

Learning to read usually involves fairly extensive use of crayons, paints, pictures, pencils, scissors, and many other implements. Children will differ greatly in their experience with such devices. They must learn how to use scissors and paste, how to handle crayons and pieces of chalk, how to use paint and brushes, how to mold clay,

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and perhaps also how to use hammers, saws, boards, blocks, pencil sharpeners, and so on. They may also need to learn what wastebaskets are for, where supplies are located, what the rules about getting and using them are. It is easy to underestimate the amount of learning required to make the child confident and expert in using modern equipment and it is also easy to underestimate the extent to which mastery of such materials eases the way to learning to read later. The child who is clumsy and insecure in the midst of such a variety of devices cannot give his undivided attention to the reading problems per se when the time comes for their introduction.

Background of Experience and Information. Children come to school with a great variety of preceding experiences and a great range of information. Some children may have come from homes richly equipped with educative materials and favored by continual and intelligent guidance and instruction from the parents or other persons. They may have been taken on trips, have been to stores, to the country, to the seashore, the zoo, and many other places where firsthand experiences have been gained. They may have had extensive opportunity to learn from conversation with many persons, from picture books, from experiences with concrete materials, and from reports from many friends, both young and old. At the other extreme, one may find a child whose home has provided little educational opportunity or incentive, whose environment has been severely restricted. Two children of equal native endowment may thus present themselves at school with very different amounts of experience in learning and of information.

There can be little doubt that, other things being equal, the wider and richer a child's experiences and the greater his range of information, the better he is equipped to learn to read. The underprivileged child is not only a less experienced learner but he may lack the concepts essential for full and clear understanding of much that he reads. The child, for example, who is very well acquainted with the farm and all that goes on there, has a background of interest and of understanding which makes it easy for him to read the story about the farm. In comparison, a city child who has never seen a farm or heard much about one is at a disadvantage.

Although the group or individual intelligence test and many of the *Gates Reading Readiness Tests* reveal in considerable measure differences in information and experience, it is advisable for the teacher to make an independent appraisal. By observing the children and talking to them, she can estimate not only the degree of a pupil's experiential background and information in general, but learn much about his interests in and knowledge of each of several particular areas. All this information will be useful when the child begins to read.

The devices for enriching and enlarging the pupil's experiences in the elementary grades are now so widely known that they need not be mentioned here in detail. Trips and excursions to various places in the neighborhood are effective means of intellectual enrichment. Sound and motion pictures of the types now rapidly coming into use are very useful for enlarging experiences, comparing things not readily available, and for extending experiences by showing different types of situations, such as different kinds of farms, homes, or schools. Still pictures of homes and schools, of farm and other life, of parks, zoological gardens, and of innumerable details, such as furniture, airplanes, boats, buses, animals, implements, and foods may be profitably employed. Reading from carefully selected books, followed by discussion in which children relate their own experiences, is a fine means not only of extending the child's experience but of developing his ability effectively to enjoy stories and other selections. Class discussions and various artistic, dramatic, and instructive schoolroom projects have a place on the program. Reports from older children and adults, including parents, who may tell interesting things about their trips or some historical episode or some type of business are usually enjoyed.

Almost all types of information are useful but certain specific types are indispensable for learning to read. It is necessary to learn to distinguish right from left, to know and to be able to name the common colors, and to recognize certain familiar geometrical forms.

Knowledge of Left and Right. Due to the fact that one of the most important things for the child to learn in the initial stages of reading is to maintain the left to right direction of attack upon a

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word and a printed line, knowledge of these concepts should be clearly established before reading is taken up. The child should be able to distinguish the left hand and the right hand, to understand the concepts *left* and *right*, and to be able quickly to grasp the motion of movement from left to right or vice versa.

The teacher should, therefore, conduct informal tests and immediately provide instruction for those children who are not equipped with the information and habits involving left and right. The old game, "Looby Loo," is a favorite one for teaching left and right. Games can be organized in which the pupils show their right or left hand, point to the right or to the left, walk to the right or to the left, point to a garden at the left of a window, put the book on the right end of the table, draw an arrow pointing to the right, and so on. In other words, the concepts may be taught without rigid, formal, and otherwise fruitless drill, by embodying realistic activities in games and schoolwork. For example, when they are discussing a picture, the teacher can ask for the identification of something on the right side, suggest that a pupil point to some object on the left side, or that she hang the picture on the right side of the bookcase. These exercises are better than merely going through the motions of showing right and left hands, without any other particular objective.

The Common Colors

The modern program involves much work with colors. Not only are the reading books richly illustrated in color but a good program includes the drawing and coloring of pictures in workbooks and on the blackboard, the arrangement of displays involving colored paper and other materials. The teacher should early investigate the group and discover those who are color-blind and those who have not yet learned to name the colors.

The colors are best learned as part of activities carried on primarily for other purposes. For example, on a visit to the country the teacher may ask, among other things, about the color of the flowers, the buildings, the animals, and suggest the appropriate color

to those who are uncertain. Many activities carried on within the schoolroom provide a natural means of helping the major enterprise along by utilizing colors. For example, there may be a discussion of the choice of colors for curtains or draperies or table covers. When colored posters or pictures are discussed, things may be identified by color and interpretation fostered by discussing the significance of different colors. Work of this type is better than formal drill in the identification of colors, of sheets of paper held up, or circles arranged on the board. The reason is that when colors are considered in their natural setting their function as well as their naked characteristics are brought to the fore. The colors can also be taught in connection with drawing pictures with colored crayons or chalk or painting illustrations with watercolors. There is no objection to occasional use of colors as critically identifying features of games. For example, a guessing game may be arranged in which a pupil whispers to the teacher the name of some object which is described only briefly by its function and by its color. The other children attempt to guess the object.

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In order to prepare the pupils as fully as possible for dealing with objects and symbols used in the first reading lessons the teacher should survey in advance the readers, workbooks, and classroom materials to be used in reading instruction. For example, common geometrical figures, such as the circle, square, cross, and star may be found in the material and referred to by name. Activities should be arranged to teach the pupil these items before they are encountered in reading and thereby reduce the learning burden in reading and remove certain sources of interruption. If the reading activities involve marking X's or making crosses, drawing a line under things, drawing a circle around items, it would be well to introduce these in the prereading work.

Speech Training. The Appendix describes a test for diagnosing speech defects and deficiencies and Chap. 4 gives some information which will assist the teacher in distinguishing mild from serious

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defects and in identifying immature stages of development. Most of the deficiencies in articulation and pronunciation fortunately may be remedied in a program which provides ample opportunity for free conversation and discussion, the telling of stories and relating of experiences, and other normal speech activities. Certain general principles should be observed in dealing with the child whose speech is immature or subject to minor deficiencies. A rich and varied program of enjoyable, normal speech activities may include situations in which alert listening to and discrimination of the component sounds of words is provided for. A number of the activities to be mentioned shortly, designed primarily for the purpose of familiarizing pupils with the characteristic sounds of words, will also be useful.

An important part of the program is to provide the pupils with a good model of speech which they may imitate. The teacher may encourage the child to listen carefully to her speech and to try to speak as she does. It is, of course, important in doing this to avoid making the child self-conscious or tense, or too sensitive to his own speech, especially to his mistakes and difficulties. Most speech deficiencies will clear up after a few months of useful, enjoyable activities in talking and listening. It is advised that such a program be followed at least for several months without resorting to the more formal or specialized types of corrective work. The latter is essential only for the rare cases and even in those after a full demonstration that they are not improving in a program of abundant speech activities of the normal type.¹

In the following sections are offered suggestions for developing the more important of the abilities measured by the *Gates Reading Readiness Tests*.

Ability to Listen and to Understand Instructions and Directions. The normal activities of a first-grade or kindergarten class provide a range of types of oral presentations by the teacher. In the natural course of events she will be explaining the program, telling how to

¹ A more detailed discussion of speech improvement will be found in the *Manual for the Pre-Reading and Reading Readiness Program of Today's Work-Play Books*, by Arthur I. Gates and Mary M. Bartlett, The Macmillan Company, New York, 1945.

use various apparatuses and bits of equipment, relating the plans for an excursion, reporting various observations, and so on. All these provide opportunity for listening. It is important to combine with such explanations and discussions suggestions for follow-up work by the pupil. Considerable incentive for listening carefully and remembering what to do is provided. Some special attention may need to be given to pupils who are hard of hearing or who are rather backward in the art of listening. They may be given advantageous positions in the room and advised to watch the face of the speaker closely, especially the mouth. At first they may secure very few clues from observing the face but the experience tends to help them maintain their attention. Gradually they will learn to get some useful suggestions from the facial expressions and gestures. For the markedly hard-of-hearing child, little games may be played in which the teacher articulates with obvious lip and facial movements certain words or phrases or sentences silently. A game is to see whether the children can tell what the teacher was trying to say. The attention of the inexperienced child may be made more alert if the teacher finds occasions in which some important announcement is first said by the teacher to him with the understanding that he is, in turn, to report it to the class. In all these activities the teacher must be careful to avoid the development of tension.

The teacher should include in her oral presentations a certain number of definite and precise directions as well as general instructions. The child who has difficulty understanding and remembering directions may, for example, be made a special officer or monitor and the teacher may give him orally a number of directions, such as, "Please bring me the two books you see on the end of the table." For these pupils the first directions must be short and simple with relatively few steps. They may be increased in complexity. Gradually instructions may be given which do not have to be executed immediately but after an interval of time.

For developing skill in listening to instructions and directions, it is unnecessary to set up a series of purely formal and artificial types of instruction. It is better, as in the case of developing any other

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type of information and skill, to embody them in some enterprise or project with rich and varied educational objectives. For example, during the course of a visit to a store the teacher may find opportunity to offer explanations, give announcements and precise directions. A relatively large number of these properly selected may be directed to those children who particularly need them.

The Story Sense. First as well as later lessons in reading in the primary grades will employ many stories. It is not always realized that a child must learn to listen to, understand, and follow a story. Occasionally a child comes to school who has rarely heard typical children's stories of any considerable length and finds himself baffled in attempting to follow them. He has not learned how to select and organize in his mind, as the story goes along, important episodes which are needed to make meaningful later sections of the story. In the middle of the story the child becomes more or less lost. He does not remember very accurately what has gone before. If he were asked to anticipate what would come next, his responses, if any, would often be bizarre and poorly related to the general trend of the narrative. If the child entered reading with such a limited development of his story sense he would find the task much harder. He would be unable to use many obvious context clues that other children employ. Ability to anticipate what comes next in stories greatly assists the child in his reading.

In the prereading work the teacher should read and tell the children many stories similar in length and structure to those that will be encountered in reading. She may, in fact, safely and profitably tell longer and more complicated stories. She should arrange, however, to tell relatively short stories involving a relatively small number of clear-cut steps for the least experienced in grasping a story and others at various stages between the shortest and the longest and most complex. If the children represent a very wide range, it may be advisable in the early stages to divide them into two or three or more groups so that the teacher can read or tell to each group stories of the most appropriate length.

In addition to stories, other types of material, such as descriptions of a trip, the steps involved in carrying out the project of

making a school display, or an explanation of interesting current events should also be related to give the pupils practice in following other types of development, such as sequences based on time, logical relationships, and the steps in a practical operation.

In these oral activities provision should be made for the pupils to secure experience in recalling and reorganizing the material for various realistic purposes. It would be a good idea for the teacher to list and discuss orally the types of follow-up activities to be pursued after the reading of selections. An excellent device for stimulating interest in following the cumulative thought in a story or other material is that of halting the account at times and asking the pupil to tell what will probably come next. After his suggestions have been discussed, the teacher goes ahead with the next unit and then repeats the problem of prediction. Many primer materials are divided into parts convenient for this purpose and similar divisions may be made in the oral report. If the teacher is reporting an outline of the steps to be taken in building a doghouse or arranging a display in the room, she can similarly report the steps up to a certain stage and ask the pupils to tell what they then think the next step should be.

In appraising the pupil's reports of what will happen next or what should be done next, the teacher should, of course, not assume that the only good reports are those actually found in the composition. Any reasonable suggestions should be considered as such. Where several of these are given they may be used to increase the interest in noting the next steps as they are actually given in the selection. In the early stages where few proposals are made by the pupils the teacher herself may make tentative suggestions for the pupils to appraise.

After a story or a description or a unit in one of these has been presented the children may engage in follow-up activities typical of those to be employed in the reading program. This is an excellent way of securing experience in attending carefully to what is said, selecting and evaluating the points, and organizing them during the process for later use. In other words, this is a way of establishing habits of listening selectively for various purposes which may be

carried over to reading and thereby make more easy the acquisition of the several important reading techniques. For example, after a selection has been read the teacher may ask the pupil to tell the story in his own words. This is essentially offering a summary of the main points. The teacher may ask questions or pose problems which call for the recall of significant details. All the types of comprehension questions and exercises to be used in connection with reading later may be employed with the oral activities.

Even at this early stage pupils may be asked to give what essentially amounts to an outline. For example, they may be asked to arrange in order of occurrence the most important or the most interesting episodes in a story. They may be asked to report in brief the various stages in a trip through some section of the city. They may be requested to arrange in order the main steps in building a doghouse for the schoolroom. They may be asked to think over the story and work out a little drama which they themselves could act. Questions may be raised or opportunities may appear in the free discussion for comparing opinions concerning precisely what a character in the story would do or should have done, how a particular difficulty might have been averted, or other issues that involve evaluation and judgment. The pupils may be asked to draw a series of pictures or arrange a series already drawn to reproduce the most important episodes in the story or steps in a process, such as building a house.

Word Meanings. As pointed out in an earlier section, children at this stage learn to recognize words by hearing them spoken and become familiar with their meaning by thinking of the words in connection with experiences which give them significance. These experiences may represent direct contacts with reality, as when the word *camel* is frequently spoken while the children are observing the camel at the zoo. The idea may be conveyed in some other way, as by an oral description of a camel, a still or motion picture of it, the presentation of a stuffed miniature, or a vivid story which tells something about a camel's activities and characteristics. A program embodying the various activities suggested in preceding pages will, therefore, form the basis of increasing the words a pupil can

recognize when he hears them and of enriching the meanings of such words.

The process of achieving familiarity with words and their meanings is facilitated by sharpening the pupil's reaction to them. It is fostered by bringing the word rather sharply to the foreground in a discussion or other activity. For example, if the children are visiting a store, the teacher may bring into the foreground such words as *cornflakes*, *coffee*, *bananas*, *cash register*, *refrigerator*, by a discussion of these objects. The teacher may see to it that the word is used several times by herself and by others and that it is clearly pronounced. Later, in discussing the trip in the schoolroom, she may again use the words. She may, for example, ask about the refrigerator and see that the word is used several times when the pupils are telling how big it was, what was kept in it, and so on.

The teacher may help children pronounce the more unfamiliar or difficult words, such as *refrigerator*, *margarine*, *strawberries*. In some instances, characteristics of the words themselves may be presented; for example, a little voice word, such as *squeak* and a big voice word, such as *roar*, a long word, such as *tremendous*, a short word, such as *if*. Words may also be connected with a picture or other representation in the schoolroom. Words involving relationships which are often difficult to learn in their precise meaning, such as *apart*, *beside*, *whenever*, may be used precisely and, where a good opportunity presents itself, explained in other terms.

It should be noted that no activity makes more definite demand for the understanding and precise use of a word than speaking the word in some context by the pupil himself. For this reason, all the activities suggested above should provide abundant opportunity for full and free expression on the part of the pupils, especially those whose language background is somewhat weak. The need to express oneself, if keenly felt and acted upon, provides the most insistent desire to be able to think of and use properly the words in one's vocabulary. In these activities the teacher may assist the child by adding a few suggestions to his comments in which she embodies some of the words and concepts she would like the pupil to learn.

It would be a good idea for the teacher to canvass the words and the concepts to be encountered in the first reading lessons and see to it that the children are made familiar with the sound, pronunciation, and meaning of as many as possible, preferably all of them, before they are encountered in reading.

Ability to See and Interpret Pictures. A rich program in observing and interpreting pictures should be provided in the pre-reading period for two reasons. The first is that pictures, both motion and still pictures, appeal greatly to children and are extremely fruitful sources of new ideas and experiences. Children can learn a great deal from pictures. Secondly, the skillful interpretation of pictures, both black and white and colored pictures, is a great help in learning to read. Modern readers, supplementary readers, workbooks, and other materials, are richly supplied with pictures, many of which tell more or less of the story contained in the text. In a typical situation the text tells certain things not represented in the picture and similarly the picture enlarges and enriches the ideas at many points well beyond those conveyed by the text. The more clearly the pupil understands the ideas conveyed by the picture, the richer his experience will be and, what is much to the point, the easier will it be for him to read the text.

There are many subtle techniques involved in examining a picture and getting the main points from it. These skills can be achieved only on the basis of extensive experience. Some children come to school with very little background of experience. They get a very vague and incomplete impression of a picture presented to them. Some of them will require considerable experience before they can get out of pictures the minimum amount assumed in the organization of the reading books.

For the inexperienced child the teacher may need to begin with relatively simple pictures containing few objects and little irrelevant detail. The observation and interpretation of pictures typically go on at different levels. At the lowest level, the child tends merely to enumerate the objects which he sees in the pictures, such as "cat," "dog," "man." At a somewhat higher level he will make simple statements concerning the more obvious activities, such as "The

little boy is playing with the dog and the girl plays with her cat." At a still higher level, the pupil can report the general significance or meaning of the picture, as, for example, "The girl's cat is afraid of the dog and she is trying to get them to be friends." This is the level of interpretation. At a still higher level, the pupil adds more speculative or imaginative factors which give the situation a richer and more comprehensive meaning. For example, the pupil may say, "Oh, I think this girl has had a birthday and her mother and father have given her a new kitty. They are trying to get the dog to be nice to it and to invite it to come and live with them."

The teacher should attempt to ascertain the level of comprehension at which the pupil is functioning and help him gradually to move from a low to a higher level. She must recognize also that the pupil must learn the techniques of perception, that is, how to look over the picture and distinguish the significant features from the less significant ones. An inexperienced child finds ordinary colored pictures nearly as baffling to him as an adult, inexperienced in futuristic art, might find a painting of Picasso. To the experienced person, a Picasso picture has a clear meaning and this person may be puzzled by an adult who finds it an unintelligible arrangement. Pictures are not complete. The whole story must be derived from certain suggestive details and it is a considerable art for children to learn to interpret all the kinds that may be found in primary reading. Careful, patient guidance in the interpretation of pictures, coupled with group suggestions and follow-up activities similar to those recommended for the interpretation of stories in the preceding section, should be generously supplied.

There are now available for use in the prereading stage many pictures arranged in series to tell a story, relate an experience, or describe a process or activity. Experience in using pictures of this type in sequence to get a complete story or operation should also be provided. As children learn to handle crayon or chalk they may be encouraged to make up serial pictures themselves.

Pictures may be used as the instrument of promoting a number of prereading activities. For example, the children may leaf through magazines or picture books to find illustrations which are related to

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a story that has been read or a topic that is under discussion. If they are going to build a doghouse they may look in books for pictures of different kinds of structures. They should be encouraged to look over magazines and books of pictures at home and to bring them to school to show other children. The teacher should arrange for a proper display of such offerings on the bulletin board or elsewhere and occasions for reports to the class. Such activities as deciding upon titles of pictures or ways of classifying and grouping pictures provide further means of encouraging the higher level interpretations and of cultivating the general techniques of thinking.

Interest in and Familiarity with Printed Words and Connected Material. Test 2 of the *Gates Reading Readiness Tests* is called a "Word Matching Test." Strictly speaking, it measures the pupil's ability to identify in a group of four printed words the two which are the same. Actually ability in this test depends upon the degree of familiarity a child has previously acquired with printed words and the nature of the technique he employs in observing words. His familiarity with words and his technique of dealing with them in turn depend upon the nature and amount of his past experiences with printed words in all sorts of situations—the words and sentences he has observed in picture books, story books, magazines, newspaper headings, billboards, placards, street signs and on innumerable package labels. In an investigation by the author it was found that, other things being equal, children who are faced with words at every turn in books and other materials in the home, on signs and posters in the streets, billboards, and the like, have advanced more in these techniques than, for example, rural children who rarely find words impressed upon them. Great differences in these abilities may exist among children who are unable really to recognize any words. Many children, however, on entering school can recognize at least in certain settings a few words.

If intelligence and other factors are equal, the child who gets a relatively low score on this test is in need of a rich program of experiences in observing words in different settings. Activities arranged for this purpose enable a child to develop an awareness of

what reading is and does, an interest in learning to read, a familiarity with word forms and certain techniques of looking at words. Experiences conducted in the school may be so carried out as to produce the more effective forms of word perception.

To foster the development of these several interests and abilities in reading and word recognition the teacher should use her ingenuity in providing convenient and realistic occasions for reading all sorts of things to the children rather than merely saying them. For example, if there is an interesting statement which she has to make at the beginning of school she may have this typed or printed on a bulletin board and proceed to read the statement rather than merely say it. The same message is conveyed and, in addition, the pupils observe that the good news came from reading printed words. If she undertakes to select the title for a picture she may print it with rubber type or write it in print type beneath the picture, explaining to the children that these printed forms say the same words she now speaks. If she shows an article she can present a printed form of the name of it and read this printed word instead of merely saying it. An episode which she wants to relate may be typed out and read to the class instead of merely given orally. Many of the stories recommended in previous sections may be read from books or magazines instead of being told.

The children's attention should be frequently called to printed statements that are encountered in and out of school, as, for example, stop and go signs, the names of the streets, the name of the legend and the announcement in the store window, the directions on a package, and especially such signs as "danger," "no admittance," "keep off the grass," "lunch room," "entrance," "poison."

Children should be encouraged to bring to the school materials that they want to read. For example, if they have a story book or have received an advertisement in the mail which interests them, they may bring it to the teacher to read aloud to them privately or, if it is of general interest, to the group as a whole. The bulletin board with announcements, schedules, plans for the day, and other interesting material should be extensively used.

Words should be freely used to identify objects in the schoolroom.

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Titles may be printed to be placed under pictures. The material contained in different cupboards may be indicated by signs on the doors. Scrapbooks may be made up with legends, titles, and the names of objects in printed form. After a school excursion, words indicating objects or situations may be presented in discussing them. For example, after a visit to the store the teacher may show a printed card with the word *cornflakes*, *refrigerator*, or *oranges*, as she discusses these objects. Children should likewise be encouraged to bring words from packages and other objects which they would like to know.

It should be understood that in this prereading stage the purpose of these activities is not to require the pupils to learn to recognize a large number of words. The purpose, rather, is to center attention on words and reveal clearly how useful it is to be able to read them and to give some guidance in the techniques of observing them. At a fairly early stage the teacher may use certain devices to demonstrate how she moves her eyes along a line and across a word. She may point out words with her finger or a pointer as she reads them. When she points to a single word she may sweep her fingers under it. She may in fact explain to the children that the way to look along a sentence is always from left to right and the way to look at a word is from the beginning on the left to the end on the right. She may introduce at this time some of the other suggestions and helpful devices related in Chap. 10 which deals in detail with the problem of inducing children to master the systematic left to right sequence.

Methods of Handling Books. Books should be introduced in the early stages of the prereading program. The classroom should contain proper facilities for the display and use of books. It should contain a library table or library corner and effectively display books of various types—picture books, books with pictures and a small amount of print, and books which although well illustrated consist chiefly of text. Opportunities and incentives for examining books should be made available. As new books arrive, they should be shown to the pupils and interesting selections from them read. The children should be encouraged to look over the books and select those from which they would like to hear something read.

The teacher should have frequent conferences with small groups of children gathered around the library table. She should take up books, talk about them, show their more interesting features, and demonstrate how to handle them. She should show them how to hold the book, how to open it, how to turn the pages, and how to proceed from the front to the back. She should explain to them that in reading it is necessary to begin at the top of the page, to survey the lines from left to right. She should point out that they always begin on the left-hand page and then turn to the right-hand page, and so on. The pupils may cooperate by making rules for the use of the library table. The rules may stipulate that one should have clean hands, one should hold the book properly, one should not break the book's back, or tear the pages. The rules formulated by the children may be printed on oak tag and posted in the library corner.

Teaching Essential Reading Techniques. During the activities with books and other printed materials a number of the techniques actually used in reading may be taught. For example, the extremely important habit of following a line and observing a word from left to right may be fairly well habituated. It has been found useful to teach the concepts left and right and to establish the habit of moving from left to right across the page by utilizing pictures and other materials arranged on book pages in this order. A series of little pictures telling a story may be printed in order across the page, comprising one or more lines. The children then examine these stories and learn to follow them in the same direction and sequence as they will later read words. When the teacher reads from the book or from other material she may, as indicated above, sweep her hand or a pointer under the text.

In blackboard work, other pictures and printed materials may be arranged in sequence and in observing the former or reading the latter the teacher should be careful to maintain the left-to-right movement.

It is useful to let the pupils observe the teacher write or print words on the blackboard. She may tell them to note how the word is built up as she writes it from the beginning to the end. She should repeatedly point out that the word is built up from the left

to the right and that it is important in studying a word to move the eye across it in this direction.

When the pupils are drawing a series of pictures or diagrams or other items on the board or are scribbling on their own paper, it is advisable to observe them and, whenever it is appropriate, to suggest that the material be arranged from left to right. Be sure that they set up the series of pictures telling the story in this order. If the pupil is going to draw a geometric frieze figure on the board, advise him to start on the left and to work toward the right.

Before children are expected to recognize words they may be guided in developing more effective techniques of perceiving words. For example, they may be assisted by comparisons of similar words. If the words *cat* and *dog* are printed or written on the board, the two may be compared. At this stage it should not be assumed that the pupils can recognize or name the letters. They can be helped, however, to make their comparisons by observing the word from the beginning to the end. Thus they may note the difference in the initial parts of the two words, the rather similar part in the middle, and the differences in the end. The teacher can move her finger under the words as they look first at one and then the other. In general, at this early stage it is perhaps better to emphasize similarities and differences in the initial part in order to encourage them to start at the beginning.

The major part of this prereading work is to set up the right directional approach and to give the pupil some idea of the various types of shapes and characteristics of words, thereby helping him to adopt a critical, analytical attack by means of which he will later succeed in singling out the most telltale characteristics.

Making the Transition from Large to Small Type. The *Gates Reading Readiness Test No. 2*, the Word Matching Test, consists of exercises in typical primer type, printed on pages to be read at the distance of ordinary book reading. Test 3, the Word Card Matching Test, presents the stimulus word in large letters on a card which is presented at a distance by the examiner. The pupils observe this word, which is more or less typical of those that may appear on a bulletin board or a blackboard, for a short time, whereupon they

identify the same word in a group of four in primer type on the printed page. Test 3 is designed not only to secure a second measure of familiarity with word forms but also to test the ability to learn a word in large type and carry over the learning to words in typical, primer print. In general, the correlation between achievements in the two tests will be high but there may be critical cases in which the pupil shows difficulty in making a transfer from the larger words used in class exercises to the printed text in the readers and workbooks. There may be other cases in which the child is much more successful in learning the words when presented in this form than when they are in the printed booklet.

In several of the preceding sections many activities have been described in which large words from a blackboard or bulletin board are employed. Children who are backward should be given particularly numerous opportunities to engage in these activities and the teacher should check them carefully to see if words learned in the large form can be recognized in primer size type. It may be advisable to give special guidance and help to those who have difficulty.

A word may be said concerning the choice of type to use in the material presented on the bulletin board and blackboard. The greater the resemblance of the letters in the large type to those in the small type, the easier will be the transfer. It is, therefore, advisable to have an abundance of the class materials printed by the use of rubber stamps or drawn with chalk or heavy crayon or brush in the same form as the printed type. The printlike type of manuscript writing would be the next closest. However, some types of manuscript writing produce a number of letters quite different from printed forms. Script, of course, is very different indeed from the printed letters. In general, it seems advisable to put material on the blackboard or oak tag in a form closely resembling the printed letters during the period of the introduction to reading. Manuscript writing in which the resemblance is quite close may be used, especially if the teacher plans to make extensive use of manuscript writing throughout the first year. To the extent, however, that the manuscript-letter forms differ from those in the text, extra

cautions should be taken and more generous allowances for mistakes made. Even if children are to be taught to write script from the beginning, it is advisable not to use it in preparing materials for classroom reading until the pupils have made considerable progress in reading. When it is introduced, one must keep in mind that words which pupils can read in print they may fail to recognize in script. It should also be realized that for some time the pupil may learn to read words in script and fail to recognize them in print.

Ear Training to Develop Familiarity with the Component Sounds of Words. Children tend to hear words as total sound units. They may not think of the separate sounds in the words. They may not realize that many sounds occur in many different words, indeed that all words are made up of various combinations of a limited number of distinctive unitary sounds. The typical reading program of today introduces at an early stage some form of phonetic training which depends upon ability to single out and distinguish the several sounds in a word and to combine or blend these sounds into a total word sound. Phonetic work in reading involves another step which, in terms of time, is the first step, namely, that of finding in the printed word the letters or letter-combinations which can be translated into a familiar sound. This particular skill, a very difficult one to acquire, cannot, of course, be exercised until the pupils have learned to read a number of words, but all the other activities involved in phonetic analysis may be developed to a high degree before any reading is undertaken. It is very desirable to help the pupil become reasonably efficient in identifying word sounds and in blending or combining them. With a foundation of such skills, the phonetic training offered later in the reading program will be much more fruitful.

Test 4, in the *Gates Reading Readiness Tests*, is designed to secure a rough appraisal of the child's familiarity with the component sounds of words. This is a test of the pupil's ability to detect words that rhyme. This test is chosen because the most common type of play activities with the sounds of words center around rhyming words. The children who have heard at home or elsewhere familiar

nursery rhymes and jingles become acquainted with rhyming words and they may develop some skill in thinking of them. The rhyming test is likely to be the easiest test, and in general the more proficient the pupil is with the final or rhyming elements of words the more able he is in dealing with other word components.

Phonetic activities, however, involve word elements other than the final ones. The children need to identify the initial sounds of words and they profit by being able to single out the first sound in a word. The sounds of syllables within the words are also important in polysyllabic words. The pupil may recognize both the initial and the final, indeed also some of the middle sounds within words, and yet not have learned how to combine two or more such separate sounds into a complete word. They may need special experience in blending the part sounds into a total sound and thinking of a real word which is approximately the same as the combination of sounds which they have produced.

During the prereading program, activities should be arranged to give experience in identifying different parts of words, recognizing the sounds by themselves, and blending them into a real word-sound unit. One of the best ways to develop skill in dealing with the final sounds is to provide an abundance of activities with rhymes and jingles. In the early stages the children may listen to the rhyming words, repeat the words in unison and individually, and single out the rhyming unit. They may complete rhymes and make up jingles of their own. Many other exercises may be used. For example, children may be given a word orally and then try to think of other words that rhyme with it. When the child proposes one that is the same in the initial part rather than the final part, the teacher should explain by saying, "Yes, you have given me a word with the same sound and that is fine, but this was the first sound in the word. Note the last sound. Now can you give me one that ends like it?" The children may be given a key word and asked to listen to the story which the teacher reads and to hold up their hands whenever she reads the word that rhymes with the sample. When necessary, she may say the words with emphasis on the last syllables.

Similar activities may be carried out in a search for words that

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begin alike, such as *boy* and *bat*, *play* and *plough*, *under* and *until*, *grandmother* and *grandfather*. They may also listen for words that contain a similar sound or syllable at any point. They should be told that some big words contain within them little words, as in the case of *fun* and *funny*, *policeman*, *mailman*, and so forth. They may be given experiences in discriminating words which are similar in sound, such as *big*, *dig*, *pig*.

After the pupils have had considerable experience in distinguishing the various sounds of words they should be encouraged to learn how to blend individual sounds into total words. The teacher may pronounce a word slowly and distinctly with a slight pause between the parts, as, for example, *ba-by*, *b-oy* and ask the pupils to tell what the word is. At first the pause may need to be very short and later it can be lengthened somewhat. For pupils who have difficulty the teacher may demonstrate by first saying the sounds with a fairly long pause, then repeating with a decreasing time interval until the pupil can get it. This suggests the technique by which the child is to proceed. As the pupils acquire skill and confidence longer words may be pronounced syllable by syllable, such as *au-to-mo-bile* or *gr-a-n-d*. By trying out a variety of divisions the teacher can discover what kinds are particularly easy and what ones are especially difficult.

After some proficiency in dealing with sounds has been achieved the pupil should be encouraged to attempt to break up a total word sound into its component parts. A game may be played in which one child thinks of a word and then gives the sounds one at a time with a pause between them, as she has heard the teacher do it. The other pupils attempt to blend the sounds and determine the word the pupil had in mind. Practice in finding the sounds by oneself is important because this is a necessary step in working out the recognition and pronunciation of a printed word.

It should be noted that all the work here recommended is oral work. The teacher need not be concerned at this time with the fact that words which sound alike may be produced by very different letter combinations. For example, if the child gives the word *cat* as one which begins with the same sound as *Kate* it should be accepted,

whereas if the word *child* is given it should not be accepted as identical.

In most modern programs ear training, involving all the above steps, is carried on during the prereading program and continued for a long time, not infrequently into the intermediate grades. The work is typically related to new words introduced and to various activities with verse, poetry, and rhymes as found in songs and other rhythmic materials. In this way effort is made to keep the pupil's skill in sound analysis well in advance of his achievements in phonetic analysis. The English language contains many phonetic subtleties and peculiarities. Continued work with the sound characteristics of words contributes to skill in word recognition and to the development of ability to spell.

The Alphabet. Test 5 in the *Gates Reading Readiness Tests* is a test of ability to read the letters of the alphabet and some of the digits. This test is included for two reasons. First, it is advisable to know, in the case of each child, what letters, if any, he can recognize. In a typical school a number of children will be unable to recognize any of the letters and some children will recognize them all on entering the first grade. A second reason for including this test is that a pupil's knowledge of the letters is usually an indication of the amount of his previous experience with words and other printed materials. Now and then one finds a child who can recognize all the letters but shows little other evidence of being familiar with words. Occasionally a child will be found who can read quite well on entering the school but is unable to recognize individual letters. The author encountered one child in a first grade whose reading ability was fourth-grade level but who was unable to recognize twenty of the twenty-six letters in the alphabet. This shows, of course, that a pupil can learn to recognize words very well indeed without knowing any of the letters, although it is a little unusual.

The fact that knowledge of the letters correlates rather well with other evidence of reading readiness has given rise to the mistaken idea that one of the easiest ways to increase reading readiness or to equip a child to learn to read is to teach him the letters. This is unsound. In the first place, letters are rather difficult things to

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learn. Some of the letters are much more difficult to learn to recognize than are typical words. Furthermore, intensive teaching of the letters seems to contribute very little, in many instances nothing whatsoever, to a pupil's proficiency in recognizing and reading words. In some instances, it is definitely misleading in that a pupil tends to depend entirely on recognition of the individual letters instead of taking advantage of more useful features of configuration and of larger parts within the word. In general, the difficulty of the task of learning to recognize the letters and the slight contribution it makes either to ability or interest in reading in the initial stage strongly suggests the advisability of letting the pupils learn the letters gradually, if not quite incidentally, during a period of months.

Teaching the letters, in other words, except as they are realistically called for in other activities, is not a recommended feature of the prereading program.

Various contacts with letter forms are desirable during the reading readiness program. Children may be encouraged to look through A B C books and possibly to play a few games, where they really want to, with alphabet blocks, and to note letters where they serve a function. If aisles or doors of the schoolroom or closets in the room carry identifying letters these may be pointed out. If Barbara has an initial B in the corner of her handkerchiefs this fact may be shown. There is no objection to playing games of Lotto and the like. If children begin to note the first letters in words on the bulletin board and elsewhere and ask what they are, the teacher should promptly give the answer. In other words, the pupil's natural curiosity should be satisfied and a variety of normal situations which attract attention to letters may be arranged. The purpose in all of this work, however, is merely gradually to increase the pupil's awareness of letters and his familiarity with them. The child will learn a letter here and there and gradually add to his stock. Many of them will be more definitely introduced at strategic times later in the reading program. One of the many effective ways to teach them is building up a *word picture dictionary*. In this work the pupil starts with a few words and gradually adds others, classifying

them under the initial letter. After two or three months of work his dictionary is unlikely to include words beginning with every letter in the alphabet. It may take practically a full year to introduce them all. In general, it may be said that learning all the letters of the alphabet is an enterprise for the first full year and not for the prereading program.

The Use of Ready-Made Reading Readiness Books

There are now available a number of books especially prepared for the prereading and the reading readiness program. Most of the well-known series of basal readers include one or more such books especially adapted to the program in the particular series. Other books are available which may be used with any series or any reading program as the primary book or as a supplement to others.¹

Some of these books comprise materials especially organized to develop many of the important types of information, interests, and abilities outlined in the preceding sections. The correct directional attack may be emphasized throughout the book by the arrangement of serial and other picture stories and descriptions on the page. Typically the books provide stories, descriptions of places of interest, outlines of trips and the like, in pictorial form. Materials are included for a comprehensive program in ear training. Words and concepts commonly used in the early stages of reading are introduced through pictures and related visits and discussions. These books are organized gradually to lead up to informal work with stories told in printed text as well as pictures and to words and phrases arranged to give their meaning and to provide for experiences in word observation and word analysis.

Such books are particularly valuable when they are carefully organized to introduce the knowledge and skills essential for reading in a developmental order. Work with such books is not to be regarded as representing a complete prereading program or to be used independent of the variety of activities recommended in the pre-

¹ An example of such a book is *My First Seatwork*, by Arthur I. Gates and Mary M. Bartlett, The Macmillan Company, New York, 1945.

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ceding pages. On the contrary, they represent merely a carefully organized program of core experiences which may broaden, intensify, and enrich the prereading activity program as a whole. They provide also to some extent for diagnosis and thereby assist the teacher to gauge each pupil's progress. Additional books may also be used for more intensive experiences, for rapid review, or for remedial work in the case of children whose development is slow. They are useful in providing to some extent and in convenient form materials to cover ground missed by children who have been absent from school.

Ways of Determining When the Pupil Is Ready to Read

The matter of deciding when a pupil is ready to begin actual reading lessons offers some difficulties which the teacher may largely overcome on the basis of certain experiences in checking up results. The *Gates Reading Readiness Test* is typically given early in the first grade in order to determine the needs of individual children in further instruction. The teacher will then pursue a more or less definite program for the group as a whole combined with careful adjustment to individual needs. As she nears the end of this program she may give the reading readiness test again. The standard scores indicate the level of proficiency reached in the several important aspects of reading readiness.

As pointed out above, the optimum or necessary level is not the same for all classes. It depends upon the difficulty of the textual materials, the wealth of supplementary materials, and, in general, upon the particular teacher's skill in teaching. Only through additional experiences can the individual teacher determine approximately the level of achievement which is safe.

The child's success in pursuing the reading readiness program is itself significant, probably the most significant evidence of his ability to go ahead. For example, those children who do well in the activities in the latter part of the reading readiness program are very likely to continue to function successfully in the following activities in learning to read. The child who has learned to understand and

enjoy stories, to report them in brief form, to answer comprehension questions about them, who has profited by his ear training, has gotten a fair grasp of the direction of attack, has learned how to handle books quite well, can make good use of pictures, has a good idea of the orientation in following the printed line and some of the techniques of observing words, gives evidence of being successful in the initial stages of reading. On the basis of the results of repetition of the reading readiness tests and of observation of the pupil's ability as shown in the readiness program itself, the teacher will be able to determine which pupils are ready to go ahead and which ones should have additional reading readiness experiences.

When the teacher has rounded out a reading readiness program she will find a number of pupils ready to go ahead. How many there will be depends upon the general aptitude and intelligence of the group, the length and effectiveness of the reading readiness program, and other factors. In the typical class most of the pupils will be equipped to go ahead without delay with the regular reading program. There may be some, however, about whom the teacher is uncertain and others whom she feels quite confident are not yet ready actually to learn to read. The problem arises as to what to do with these different groups.

The problem of dealing with a wide range of individual differences at this time is the same problem faced in all the later grades. It is, however, somewhat more acute at the point of beginning reading, since failure to learn to read is much more conspicuous and likely to be much more serious in its personal consequences than mere backwardness in reading in the third or later grades.

A variety of methods are in use for dealing with the children who are unready to begin reading.

1. *Grouping on an ability basis.* In large school systems the pupils may be grouped on the basis of their readiness for beginning to read. Those likely to require the longest prereading program are put together to form a prereading class, whatever it may be called. Those probably requiring a shorter period may be grouped together to form a second group. In some instances more than

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two are formed. Each group then proceeds with a prereading program as long as necessary. There may be a group so slow as to need to spend a full term or even a full year before taking up actual reading material. This plan makes the slowest group in most respects a kindergarten class. In some schools children who need extended work at the reading readiness level are not formed into a group with children of similar age but are moved back with kindergarten children. This plan, of course, has the disadvantage of increasing the range of age, size, and certain other factors in the kindergarten class.

2. *Ability grouping within a class.* In small schools the pupils within a class may be divided into two or more subgroups. The first subgroup goes ahead with a definite reading program. A second group might proceed on a sort of combination prereading and reading program, one in which activities similar to those in the latter part of the prereading program are continued for some time in combination with the full range of other activities characteristic of the earlier stages of the prereading program. A third group of the slowest pupils may be formed with plans for continuing the reading readiness work for a long period. This plan has the advantage of producing small groups of pupils of similar abilities. Since the groups are small, opportunities are provided for observing the particular individual and administering neatly to his needs. The disadvantage of the plan is the difficulty of handling in the same room two or more groups and two or more somewhat different programs. There is, of course, something of a problem of avoiding unfavorable comparisons of one group with another. The plan, however, is increasing rapidly in popularity. The provision of increasingly useful equipment, such as self-administering seatwork books and other teaching aids, makes the plan increasingly less difficult to operate.

This scheme works out very well for the intermediate or uncertain group of those children who seem to be nearly ready but not certainly fully ready to go ahead. These children may be carried along tentatively with the group proceeding to learn to read. Some

of them will make good, especially if the teacher has opportunity to give them additional help in the areas in which they are weak. It may soon be apparent that others will be unable to keep up and they may be shifted as unobtrusively as possible to another subgroup. Moves from one group to another, of which some will be inevitable as the results of illness and other factors, may be carried out much more easily and unobtrusively within a single class than when they involve a shift from one room to another.

Even when classes are formed on the basis of ability, subgrouping for various purposes, such as reading and drawing, is found to be desirable. In all such classes, pupils do not spend all their time in any one group and do spend considerable time daily in entire-class activities. Thus a child may be in one subgroup for reading, in another for coloring or art work or physical activities, and with the entire class for storytelling, rhythmic games, discussions of excursions, and dramatics.

Other methods include the traditional plan of carrying the child through the first grade and making him repeat it if his reading and other abilities do not reach a stipulated second-grade standard. This method has the triple disadvantage of discouraging the child by forcing him to do work during the first year which exceeds his power, by forcing on him at the end of the year the stigma of failure (which is difficult to disguise entirely), and by forcing him to face at least some repetition during his second year.

In other schools the child does not repeat the first grade but goes on with his group despite his deficiency. The difficulty is that this deficiency often becomes more pronounced and distressing—unless a plan of subgrouping or special individual assistance is provided.

The newer method of flexible subgrouping within a grade for various purposes is highly desirable in any class. The wider the range of ability, the more desirable it becomes. In some schools provision is made for assistant teachers or specialists to assist the regular teacher in dealing with the lowest subgroup of pupils in speech, rhythmic activities, oral reading, and so on.

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Exercises

1. What is the meaning of "reading readiness"?
2. What mental age is necessary for success in beginning reading?
3. Describe some of the adjustments that must be made by a child entering school for the first time.
4. How is the underprivileged child at a disadvantage in beginning reading?
5. Why is direction an important concept for beginning readers? Make a list of simple, nonreading, classroom activities and games by which direction sense may be fostered.
6. When and how should the teaching of color names be introduced in the prereading program?
7. How shall the teacher help her children to speak clearly and correctly?
8. Suggest classroom situations that provide experience in following instructions.
9. How does the teacher appraise a child's "story sense"? Why is this ability useful in beginning reading? How may it be improved?
10. What is selective listening at the prereading level?
11. Suggest several devices for teaching word meanings to young children.
12. Describe three levels of picture interpretation. Why is this ability necessary for reading success?
13. Why is "word matching" skill indicative of one phase of reading readiness?
14. Why should the teacher read aloud to the children frequently during the prereading period? What other devices may be used to familiarize them with the nature of the reading experience? To what extent will they learn to read words during this period?
15. Mention several methods by which the teacher fosters left-to-right reading habits during the prereading period.
16. What is the value of presenting early reading materials in print or manuscript writing as opposed to script?
17. What are the values of rhyming games and activities in the prereading period? At what point in the reading program will phonetic activities become unimportant?

Exercises

18. What is the relationship between letter-naming ability and success in beginning reading? Why is making a "picture dictionary" a valuable activity?
19. Examine a prereading book. Can you justify the inclusion of the kinds of activities you find in it by naming the purposes they serve?
20. In what ways may the teacher deal with the problem of providing adequate programs for children at varying levels of reading readiness?

chapter 7 Techniques Employed in Acquiring a Reading Vocabulary

As stated in the preceding chapter, the crucial test at the beginning stage of reading occurs in the child's efforts to learn to recognize words. He encounters words in isolation, in phrases, such as "my book," or "dear sir," and in sentences and paragraphs. He cannot read a passage unless he can recognize all or most of the words in it.

Characteristics of a Child's First Efforts to Recognize Words

When the child endeavors to recognize an isolated word without any suggestion of its meaning conveyed by a statement from the teacher or an accompanying illustration, he must depend entirely upon study of the word form itself. He must find some way of seeing or analyzing the word form which will bring the whole

Characteristics of a Child's First Efforts to Recognize Words

word to his mind. As we shall see presently, there are many ways in which children study a word in order to be able to recognize it later and in which children look over or analyze a word when it is presented to them for the purpose of immediate recognition. Some of these ways are very useful and most children rapidly acquire ability to "learn" and later to recognize words by means of them. Others are not so valuable and when they are used exclusively they prove to be inadequate. Children restricted to the less useful devices will acquire a reading vocabulary slowly and will be sluggish and inaccurate in word recognition—indeed, some of them may be quite unable to learn to recognize words sufficiently well for the ordinary purposes of reading.

After reading is once under way in a typically modern program, the pupil will encounter the majority of the "new" words in a phrase or sentence. When a word is encountered in context the pupil can use not only word-form clues but also word-meaning clues. If, for example, the child is familiar with all the words in a sentence except one, the meaning of the sentence as a whole will help him greatly to figure out what the less familiar word is. Typically in such a situation the child uses at one and the same time such suggestions as he can get concerning the meaning of the word and other suggestions obtained by observing the word form itself. In such situations, word recognition is much easier than when the word appears alone without any suggestion of its meaning. The pupil may need to be reminded frequently to use both clues.

In his first efforts to learn to recognize words, the pupil will carry over to the task techniques or habits which have been used in other situations previously. For example, he will attempt to use the same devices for "guessing" the meaning of the word that he had previously employed in figuring out unfamiliar or poorly heard words spoken to him in phrases or sentences. In studying the word form itself, he is likely to employ some of the habits or techniques that he had previously used in recognizing other objects, such as faces, drawings, and actual objects, such as pennies and nails. In many of these cases the habits carried over to the task of learning to recognize words are useful and should be retained, in-

deed further refined. In other instances, the habits are quite unsuited to the task of word recognition and more appropriate habits must be substituted for them. It will be the purpose of this chapter to describe the various techniques, good and bad, used in developing a reading vocabulary.

How Word Meanings Are Acquired

Comprehension of the materials read by a child depends upon a number of factors. As pointed out in the preceding chapters, a child must first recognize the visible word form before he can get its meaning and since it is necessary to get the meanings of the words, or at least most of them, in a sentence before the sentence as a whole can be understood, ability to comprehend depends upon ability to recognize words. What a sentence means to a child obviously depends, in part at least, upon the meaning conveyed to him by the words.

When a child first begins to read, the meanings which come to him when a word is recognized in print are the meanings previously acquired. The printed word is merely a stimulus which, when properly recognized, evokes a word meaning. What the word means depends fundamentally upon a child's previous experience.

Word concepts or word meanings are built up in a variety of ways. In the first stage, as in early infancy, words are given meanings by being associated with some thing, situation, event, or experience. The word *book* is given meaning by being presented orally while the pupil is looking at a book. The word comes to stand for the pupil's experiences with the object. As the pupil acquires efficiency in using language, meanings may be enlarged, enriched, and made more definite through language activities themselves, as well as through additional experiences with objects and events. The child's stock of word meanings is built up by hearing the words spoken by others, by speaking the words himself, and by relating both to concrete experiences with objects or situations or events with which the words are associated. When a child is talking things over with his mother, for example, he is developing word concepts

How Word Meanings Are Acquired

both by hearing the words and by speaking them in various relationships. If, during the discussion, the child is observing an event or is engaged in an activity in which a concept is involved, all three factors are contributing to the growth of his word meanings. The word's meaning may be enriched also by experiences with pictures, drawings, diagrams, motion pictures, and other means by which concrete situations or objects are represented. In brief, the meaning which occurs to a child when he first reads a word depends upon all his past experiences which have been in any way associated with the word. What he understands when he reads will be substantially what he understands when he hears the same word spoken in the same context by someone, or substantially what the word means when the pupil himself uses it in a spoken context.

When the child encounters a new or rather unfamiliar word either in a passage spoken to him or in one read by him, he may guess its meaning more or less definitely from the total context. With no help except the total context a new or relatively unfamiliar concept may be very inadequately understood or even misunderstood. In either case the pupil's understanding of the word is improved if a special effort is made to define, describe, or otherwise indicate its meaning more definitely. This is especially true when the context spoken or read does not indicate the word's meaning very fully. Where nothing is available but the spoken or printed context some children, of their own accord, single out the word, give it special attention, and attempt in some way, as, for example, by asking the teacher, or looking the word up in a dictionary in later grades, to arrive at a more definite and comprehensive understanding of it. Others are less concerned and more disposed to go ahead without interrupting the reading even when they are rather vague about the precise meaning of a word. Investigations have shown that most children will develop a stock of word concepts more rapidly and more effectively when words are singled out and sensible methods used to give them fuller and more exact meaning. For this purpose some type of "word enrichment" or "vocabulary development" program is usually introduced in connection with reading, spelling, and other subjects.

Techniques Employed in Acquiring a Reading Vocabulary

A program for developing a reading vocabulary, then, makes provision for the enrichment and refinement of word meanings. A good program will make provision for

1. Rich and varied experiences with the things, situations, events, activities, and other phases of reality which the words mean or represent.
2. Rich and varied experiences with the things, situations, events, and activities represented in still and motion pictures, models, graphs, and diagrams, and in other ways.
3. Rich and varied experiences with the ideas in verbal form including hearing about them, talking about them, and reading about them.
4. Abundant, well-selected experiences in deriving the word meanings, both in the most obvious and in more informal and varied forms from the context of printed passages.

Suggestions concerning the development of word meanings by means of concrete experiences, pictures, and other representative materials, and by means of oral activities and reading are made in almost all the following chapters. In the next section of this chapter will be considered especially the importance of the process of deriving or guessing meanings from the total context of passages heard or read.

Using Context Clues in Word Recognition

By the time the pupil reaches the beginning stage of reading he is likely to be fairly skillful in figuring out spoken words from the meaning of oral statements. He is likely to apply the technique in his efforts to read a sentence. This technique of utilizing context clues is highly desirable and should be carefully cultivated.

The method of using context as an aid in recognizing words has the merit of placing comprehension foremost. When unfamiliar words are encountered this method introduces the minimum amount of distraction from the thought. It usually operates quickly, with a minimum of hesitation in reading, either silently or aloud. As in the case of almost every other good technique, this method,

Using Context Clues in Word Recognition

when used exclusively or excessively, often leads to distortion of the thought and to the neglect of the development of skills in working out the recognition and pronunciation of the words by word-form clues. For example, if the pupil cannot recognize the word *cigar*, in the printed sentence, "The man was smoking a black cigar," he might substitute the word *pipe*. He would have had approximately the correct idea of the sentence as a whole in this case, but in some instances the difference might be of real importance. Note also that if the pupil calls "cigar" *pipe*, he is practicing an error in the recognition of the word *cigar*. Where used excessively or exclusively the result may be an inadequate development of the use of word-form clues and slowness and uncertainty in developing a reading vocabulary.

Several factors influence the use of the device of utilizing the context as a means of recognizing unfamiliar words. In the first place, pupils differ in their skill in understanding language and the higher the pupil's linguistic insight the greater will be his skill in figuring out unfamiliar words from the context of the printed material.

Children will differ also in the amount and the kind of their previous experience in getting ideas from language. Children who have lived in homes in which there is much conversation in a variety of areas will have an edge over those who have spent much time by themselves, hear interesting talk less frequently, or are given less attention in group situations.

In the process of guessing words from context in reading matter, the character of the material itself will affect the pupil's success. For example, the pupil will be more successful in guessing a particular word when the meaning of the sentence or paragraph in which it is contained is clear to him. There is, therefore, an advantage in the early stages of reading in having simple ideas, simply expressed in printed form.

For most beginning readers, the more fully the context suggests the particular unfamiliar word the easier it will be to guess the word. In some instances, for example, the unfamiliar word may form a crucial feature of the total thought and the whole context

is not fully understood until that word is known. In others, the main idea is clearly represented without the particular word. The child will be more successful in the second case.

Other things being equal, the child will guess a more familiar word with greater ease and accuracy than a less familiar one. For this reason also care should be exercised in selecting for the early lessons in reading the word most likely to be known rather than a less familiar synonym. If the less familiar synonym is used the child is likely to guess the more familiar one, which would result in an error as far as sheer word recognition is concerned.

Familiar words which are vivid, highly interesting, or important are typically guessed from context more successfully than less vivid or less interesting or significant word forms. Such words as *ice cream*, *circus*, *father*, *toy*, when included in suitable context, seem to arouse greater alertness than more drab or insignificant words.

At the beginning stage of reading, children tend naturally to attempt to use context clues in guessing the words which are unfamiliar to them in print. Later experiences may encourage and develop or discourage and retard the growth of this technique. In a program in which interesting and challenging uses are made of meanings developed in reading, in which the particular words are used in varied and interesting context and carried over for use in a variety of attractive activities, the skill is likely to be cultivated and improved. In a program in which less effective use is made of the substance of what is read and more emphasis is placed upon mechanical factors, such as exactness in word recognition, formal articulation, and pronunciation in oral reading, the technique may become impoverished.

Desirable degrees of enterprise in using context clues will lead to a certain number of errors. These errors occur when the pupil gets the right general idea but gives a word which is a synonym or in some other way closely related to the printed word in the text. Various types of errors are very likely to occur. For example, *the*, *these*, *those*, and *a* are likely to be mistaken for each other. All these words give approximately the right idea and the distinctions among them are usually not necessary for understanding the

The Use of Word-Form and Word-Sound Clues in Word Recognition

thought as a whole. If the word is *daddy*, the pupil may give the word *father*, or *papa*, or *man*, since the basal meaning is the same. If the word is the noun *drink* the pupil may say *water* or *milk* or some other fluid. Similarly, words related to a common situation or to a general topic, such as *cow*, *horse*, *pig*, *sheep*, *chicken*, are likely to be mistaken for each other.

Errors of this type are frequently regarded as evidence of carelessness on the part of the pupil. In some instances he may be reprimanded for having made a "wild guess," when in fact, from the point of view of meaning the guess is not at all wild. In the early stages of learning to read frequent errors of this type are to be expected. They are as often evidence of keen use of the device of guessing words from context as they are of weakness in the use of context clues. Any honest adult, surveying his own reading, will realize that he makes many mistakes of this type. He will make many of them in silent reading without even noting them. In teaching children the danger is that frowning on such errors may discourage this most intelligent and rapid device for learning new words.

As will be pointed out later, however, it is possible for a pupil to depend too exclusively upon the device of guessing words from context. The remedy here is not so much that of discouraging effective use of context clues as encouraging the pupil simultaneously to make more effective use of word-form clues.

The Use of Word-Form and Word-Sound Clues in Word Recognition

When a word appears in isolation, its recognition and pronunciation must be worked out by a study of the visible form itself. When it appears in context the child is much more successful if he can quickly get clues from the printed word form to supplement his impression of the word's meaning obtained through context clues. Considerable information has been obtained through various experiments concerning the ways in which a child studies words in his first efforts to learn to recognize them, and concerning the ways

in which he attempts to work out unfamiliar printed words at later stages of his development in reading.

We should first note the habits a pupil has acquired in learning to recognize faces, objects, printed figures, and the miscellany of small items in his environment. Photographs of the movements of the eyes show that they do not rove continuously over an object when a person studies it, but progress like a grasshopper in a series of quick jumps and more or less short stops. The eye usually moves so rapidly that little or no "seeing" takes place. The actual observation is done while the eye is at rest. Thus in looking at a face for the purpose of recognizing it a person takes a series of brief glances. The glance is represented by the stop with intervening quick jumps.

These studies show that when a person looks at a face or a small picture or a tiny geometrical figure or object, the eye moves over it in an irregular and rather unpredictable fashion. The order may be from left to right or vice versa, from top to bottom or vice versa. Typically the eye traces an irregular pattern over the object, back and forth, up and down, and crosswise. The observer looks for different points of interest with little or no effort to maintain a consistent direction in the series of observation stops. Although the movements carry the eye here and there over the object with little apparent design, the pupil is nevertheless searching for critical telltale features of the object. This is the way he studies an object for the purpose of being able to recognize it when he sees it again and this is the way he studies the object if, on seeing it again, it is necessary to examine it before he is sure of his recognition.

This habit of looking all over an object in a search for the important and telltale visible features is one the child has thoroughly developed by the time he begins to read words and the one which is most likely to carry over to the study or recognition of words unless he has been instructed or guided differently, as, for example, in a systematic reading readiness program. Printed words, practically speaking, represent the first objects encountered by a child in which this irregular, indefinite order of the study of the several parts fails to be adequate. When a word cannot be recognized at a single fixation, it is only by proceeding across the word from left to right

that one can be sure to avoid errors in word recognition. This is due to the fact that there are thousands of words made up of relatively few letters and that any given word, when its parts are observed in any but a left-to-right direction, may approximate another word, or lead to a nonsense word. The word *was* observed letter by letter from right to left is *s-a-w*. The child who happens to look at the letters in *was* in the rightward direction is likely to say *saw*, an error commonly called a "reversal error." The word *low* when first observed in the middle, then at the end, and then the beginning becomes *owl*, an error that is sometimes called "partial reversal," or a reversal of parts. If the pupil perceives first the second half of *inch*, he really sees *chm*.

In most cases, such backward reading or irregular reading by parts results in nonsense combinations. Thus, seen in the reverse order letter by letter *new* gives *wen*. *Wen* is obviously not a child's word and the pupil is likely to give some word fairly similar to it, such as *won* or *win*. If the pupil sees large units, the reverse direction in observing *into* gives *tom*; *began* becomes *anbeg* or *ganbe*. If the pupil sees the middle part first, then the beginning and finally the end, he will get *rcy* for *cry*, *thwiout* for *without*, and so on. In these cases the pupil may make no response or may continue to study the word in the same or in other ways until he gets a sequence that seems to him to be a real word, or offer the word which resembles the distorted form in general, such as *ray* for *rcy*, *throw* for *thwiout*.

Errors of all these types are often criticized as "wild" or "careless" guesses when in fact they are correct or at least ingenious reports of what the pupil actually sees. Far from being careless, they are often the result of almost painfully careful observation. The trouble, of course, is the order or direction of the perceptual attack. It is of utmost importance to realize that such an irregular way of looking over a word is the most natural thing in the world for a pupil to do. It is not at all natural for a pupil to observe a word any more than any other object consistently in the left-to-right direction. Here is a case, then, in which the natural carry-over to the study of words of habits that have worked on every other object will cause great mischief. Indeed, unless the natural habit of ob-

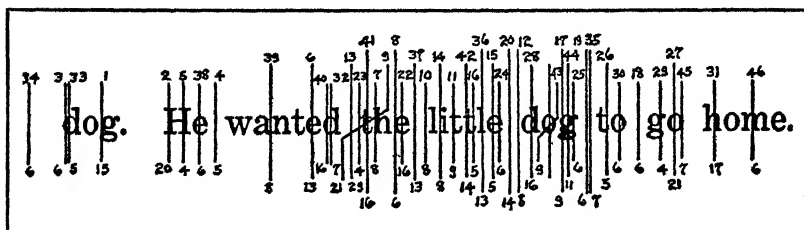
serving words in irregular order is replaced by one of *always* surveying the word from left to right, serious difficulty in word recognition and in reading in general may be expected. Consequently, in recent years a good deal of attention has been given to instructing the child in the direction of his word observation until he becomes highly consistent. Even children obtaining very good guidance in learning to read fall back into irregular patterns of attack occasionally and, as a consequence, make reversal, semireversal, and other "wild" errors.

Records of eye movements of typical pupils have been made at various stages from the beginning lessons through college. Improvement in acquiring a systematic left-to-right movement and achieving correct word perception with fewer observational stops on the word is usually very rapid during the first year of reading. Thus the average number of fixation pauses in silent reading at an early stage begins at twenty or more for reading an average line and is reduced to about eleven at the end of Grade 1 and to about seven in the middle grades. The stops for observation of a word or part of it become less long as the pupil secures experience. The average stop is about $17/25$ of a second at the beginning of the first grade, about $9/25$ at the end of the first year, and about $6/25$ in later grades. The number of regressive movements, that is, jumps backward or leftward, during the process of reading a line is five or more at the beginning of Grade 1, around two at the end of Grade 1 and about one and a quarter in Grade 6. The regularity and consistency in maintaining the left-to-right order show a similar rapid growth.

The reproductions of the photographic records by Buswell of three pupils in the first grade are illuminating in their detail. The first, on page 189, shows an immature reader's activity in struggling with a line which contained several unfamiliar words. This subject made forty-six fixation pauses in reading the line. The order of the pauses is shown by the consecutive numbers above the vertical lines which indicate the points fixated. The order is so confused that it is difficult to follow it. Irregular back-and-forth study of the details of the words, with occasional large jumps from one point in the line

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to another, is indicated. The numbers beneath the vertical lines give the number of twenty-fifths of a second consumed by the fixation pauses. These are also irregular, varying from four to twenty-five—from a very brief look to one occupying a full second.



The photographic record of a first grade pupil's activity in struggling with a line which contained several unfamiliar words (From *Fundamental Reading Habits A Study of Their Development*, by G. T. Buswell University of Chicago Press, 1922.)

The record on page 190 shows less but considerable irregularity. The first line was read in sixteen pauses and a rather consistent left-to-right direction. In the second line, the eye shows frequent regressive (right-to-left) movements. Note that the pupil in looking at *after* (line 2) first centered on the *t*, then moved back to the beginning, then ahead to *f*. A similar doubling back occurs in *cannot* (line 5) and other words. *Without* in line 5 gave rise to a series of back-and-forth fixations.

The plate on page 191 shows a much more mature, efficient perceptual attack. Although this pupil is in the first grade, he reads with as few as five, and never more than eleven pauses, per line. The pauses are of short duration and the eye moves quite consistently from left to right. The few regressive movements are wholly the result of starting a little too deeply into the line, as in the second, third, and fourth, which required a single move to the left to catch the initial words. *Cannot* (line 5), which was probably not recognized during the first pause (number 1) was observed in two steps in an orderly left-to-right direction.

The beginning child is typically handicapped by an inability always to observe the word in the left-to-right direction. Errors of

A boy had a little dog. One day the dog
 ran into the woods. The boy ran after the
 dog. He wanted the little dog to go home.
 But the dog would not go home. The little
 boy said, "I cannot go home without my
 dog." Then he began to cry.

The record of another first grade pupil, more advanced in reading than the one whose record is shown on page 189. (From *Fundamental Reading Habits: A Study of Their Development*, by G. T. Buswell. University of Chicago Press, 1922.)

A boy had a little dog. One day the dog
 ran into the woods. The boy ran after the
 dog. He wanted the little dog to go home.
 But the dog would not go home. The little
 boy said, "I cannot go home without my
 dog." Then he began to cry.

Silent reading by Subject 15, Grade I A

A first grade pupil's record, showing a more mature and efficient perceptual attack than is exhibited in the examples on pages 189 and 190. (From *Fundamental Reading Habits. A Study of Their Development*, by G. T. Buswell. University of Chicago Press, 1922.)

the sorts mentioned above are therefore to be expected. Gradually the pupil acquires increasing consistency in the direction of his attack but occasional slips and irregular observations occur for some time. Even in the fourth grade an average child will occasionally lapse and make reversal, semireversal, and other errors or remain in a state of confusion concerning a word. How a child will study a word, then, depends upon how far he has progressed in perfecting the habit of observing words in the left-to-right order.

Features of Words Observed in the Early Stages of Reading

Many studies have been made of the way in which pupils study or "analyze" words in their first contacts with them. These studies show that the beginning pupils adopt very different methods of observing word forms and that the techniques which they adopt depend considerably upon the manner in which the words are presented. For example, in a study by the author and Miss Boeker¹ it was found that beginning pupils observed primarily the length of words and depended upon the observation of the length for later recognition when they were given such a series of words as *cow*, *postman*, *dress*, *duck*, *football*, and *dandelion*. To these children differences in the length were the most obvious differentiating features. When, however, the words presented at the same time were substantially the same in length the pupils tended to study the words until they found some small but outstanding detail, such as the dot over the *i* in *pig*, the "funny cross" in *box*, the similar beginning and ending of *window*, and the "monkey's tail" on the *y* in *monkey*. In this and in other studies² it was found that the character of the grouping of the words presented in a lesson produced other variations in procedure. For example, if five words were presented together with the same initial letter children were more likely than

¹ Gates, A. I., and Eloise Boeker, "A Study of Initial Stages in Reading by Preschool Children," *Teachers College Record*, November, 1923

² Meek, L. H., *A Study of Learning and Retention in Young Children*, Contributions to Education No. 164, Teachers College, Columbia University, New York, 1925. Hildreth, G., "Success of Young Children in Number and Letter Construction," *Child Development*, March, 1932, pp. 1-14.

Methods of Studying and Recognizing Words at Later Stages

otherwise to seize upon some feature toward the end of the word or occasionally in the middle, whereas if the five words were alike at the end but different in the initial part they were more likely to note the difference in the beginning part of the word.

However, in all cases a wide variety of devices was employed and a great many different clues were found to be the ones upon which the child mainly depended for recognition of a specific word. These studies indicate that while much can be done to control the type of perceptive attack upon words by management of the learning situation, children nevertheless will differ considerably in the precise devices used. Some of them adopt methods of word study which are much more fruitful in the long run than others. It will be advisable, therefore, to note the different features which children seize upon as the means of identifying words and to indicate the merits and limitations of each of these.

Methods of Studying and Recognizing Words at Later Stages

Dependence upon Striking Characters. In the early stages of learning words, pupils are much disposed, as has already been suggested, to seize upon characteristics that appear to them as outstanding (for example, the dot over the *i*). These are not always the features that adults observe.

A method of learning which depends on the perception of such features will function effectively for only a short time. To perceive words by noting primarily only such minute characteristics leads to difficulties as soon as various words of similar visual families are encountered. Beyond the early stages of learning words, this method of attack is serviceable for only a small number of rather unique words.

A persistence of first lesson habits of perceptive attack, with a resulting neglect of other methods of observation, is an occasional source of difficulty in word mastery. This dependence upon the perception of minor details may usually be detected when the pupil pronounces a series of isolated words. When the pupil encounters words more or less unfamiliar he is likely to substitute for the actual

word some other which is like it in some detail but not much like it in general shape. Thus *blue* may be called "black," *when*, "went," *play*, "day," and so on.

Dependence upon the General Configuration. Instead of perceiving primarily some detail in a word one may observe chiefly the general shape. Thus *bat*, *pay*, *run*, *catch* are words of very different configuration. To appraise the word as a whole is, in itself, highly desirable but insufficient. When relied upon exclusively this method leads to many errors in reading, especially when the material is difficult or unfamiliar. The pupil then will often pronounce, not the word itself, but one more or less like it in general configuration. Thus *when* and *where*; *then* and *than*; *hear*, *hair*, *bear*, *bean*; *ball*, *bell*, *hall* may be confused. It is often very difficult to tell whether the pupil is depending primarily on some detail of the word or on the general configuration or both. Fortunately, the distinction is rarely of importance. Both types of recognition can usually be distinguished from the various slow, piecemeal methods soon to be described. In the former, the pupil typically reacts quickly and appears often to observe superficially or merely to guess. In the latter case, the pupil usually studies the word form at length.

A keen eye for the general shape of a word is a decided asset to the learner as it is to the experienced reader. As a means of learning, mere perception of the rough configuration is scarcely enough, although it is quite sufficient for an experienced reader after years of experiences with a word. In the primary grade other clues are needed.

Use of Letters; the Spelling Method. In the course of time the pupil learns the names of the letters. Sometimes the letters are not fully mastered until the pupil can read many words. Such pupils are unlikely to use the "spelling method" of studying a word or, at least, they are unlikely to spell out letter by letter the unfamiliar words encountered in reading. Although they do not actually name the letters, pupils may study words by looking at each letter in order. In attempting to work out an unfamiliar word encountered in reading, they may also study it letter by letter. Such an attack

can usually be discovered by observing the pupil's work in attempting to read isolated words that offer difficulty because of their length or unfamiliarity.

The spelling method is often successfully employed as a means of recognizing words. It is, however, a slow process of learning and of analyzing new words. It often interferes with the development of the more rapid type of word perception necessary for rapid reading. It is most useful in dealing with short, one-syllable words and least useful with long words.

Pupils sometimes are found who rely too greatly upon the letter-by-letter attack. This habit may be produced primarily by early emphasis on the alphabet in reading or in writing, or by early zeal in spelling, or by much early work or play with letters.

A type frequently encountered among retarded readers or reading "disabilities" is the pupil who has two methods. One is to try to recognize the word at a glance on the basis of its general appearance. When this fails the pupil resorts to the letter-by-letter study method. Such a combination is common in schools in which no guidance in word analysis is given. In this case, the pupil adopts the device of naming the letters used in the spelling lessons.

Phonetic Analysis. In American schools the favorite method of assisting the pupil to acquire a reading knowledge of new words is to teach him to work out the pronunciation by identifying and blending phonetic elements. Children are taught, in other words, to analyze the visual word into its constituent elements, of which there are many varieties, some used by one system, some by others. These elements may be single letters, or two or three letter combinations or blends, such as *bl*, *tr*, *sch*. As the visual units are detected in the word the pupil gives their sound equivalents and then "blends" the sounds so that the total word is produced or suggested. This process is called "phonic" or "phonetic" analysis.

There can be little doubt of the value of this type of skill, when it is adequately and economically acquired. If pupils can learn to make such phonetic identifications and translations skillfully, they will have a good method of mastering many unfamiliar words. Phonetic skill, then, is of service in many instances, especially in

dealing with the highly phonetic words of which, unfortunately, there are too few in English.

The phonetic attack, however, like the others mentioned above, has limitations. The phonetic translation of single letters into letter sounds is useful in the case of many short one-syllable words, but quite inadequate for long words, such as *enough* or *automobile*. It is chiefly a beginning-stage device which must be replaced later by observation of larger units.

Excessive phonetic drill may result in making a pupil not only "word-form conscious" at the expense of interest in meanings, but, even worse, word-detail conscious. Every word is a puzzle of phonetic parts; pupils have become phonogram jugglers. As they fail to perceive the meaning because of their excessive attention to the word form, so they also miss the whole word form while dissecting its elements. Reading and word study become slow, laborious, mechanical performances. Serious deficiencies in word perception and reading ability are not infrequent results. Failing to secure the assistance in recognizing words which results from a certain way of seeing them as a whole of significant parts, and the help which may come from utilizing the context, these pupils, overtrained in phonetics, may become not only poor in sentence and paragraph comprehension but slow in acquiring a reading vocabulary. Thus phonetic practice must be properly emphasized; in less degree it leaves the pupil handicapped, in greater degree it may result in serious deficiency.

Syllabification. In this method the pupil attempts to break up the word into familiar syllables or parts of words. For example, he may break up the word *examination* into *ex-am-i-na-tion* or *ex-am-in-a-tion*. This procedure may be distinguished from the phonetic analysis in which such elements as *th*, *tr*, *bl*, or individual letters are sounded separately. The syllable method has many advantages even though it is not applicable to all words.

The pupil should be encouraged not only to seek familiar word parts but gradually to enlarge the size of such parts so that such units as *inter*, *ious*, *ation*, and the like are recognized and pronounced without further analysis.

It should be realized that there is a difference between mere recognition of isolated syllables on the one hand and the identification of syllables in a word and the blending of these word parts on the other. Skill in breaking the word into syllables as a prerequisite to blending is the most important and difficult phase of this method.

Little Words in Bigger Words. Many words are combinations of component words or of one or more words combined with single letters, phonograms, or syllables. For example, *grandfather* is a compound of two words; *around* is a compound of a letter and a word; *calling* is a compound of a word and a syllable or suffix; *throw* is composed of the phonogram *th* and the word *row*. Many of these words appear as parts of a number of different words. Once the pupil has learned to recognize such a word in isolation he can acquire the ability to see the "little word" in a larger word and work out the recognition of the total word. For example, if he knows *in* and *to* by themselves, an easy way to recognize *into* is to see these two component parts. In the case of a word like *grandfather* recognition is much quicker and easier if the child, instead of sounding it letter by letter or trying to break it down into a series of phonograms or syllables, recognizes at once the two component words and combines them. The average child, given proper guidance, gradually learns to discover these component words and to recognize the compounds in terms of them.

Visual Analysis of Words. In phonetic analysis and syllabication the pupil is expected to translate each element into its sound equivalent. A visual analysis without this phonetic character is also possible and useful. The pupil may "see" the several word parts one by one and thereby recognize the whole word without thinking of the sounds of the separate parts, just as he may observe the various features of a photograph of a face and finally recognize it as a picture of John Smith without thinking of any sound equivalents of the several features. Deaf-mute children must rely entirely on visual analysis and they often become very good in working out the recognition of words. Many of the word elements observed may not be syllables or phonograms, but other divisions. Thus *bubble* may be seen as *b-ubble* or *bu-bble*; these being significant visual

features for a particular child although not features easily rendered orally. The visual analysis is likely to be more productive, however, when it breaks the word up into phonetic units, since practice in the one then facilitates to some extent skill in the others. This method differs from the procedure mentioned under "dependence upon striking characters" inasmuch as it refers to observation not merely of one part but of all parts of the words. The two methods do, however, represent different amounts of the same type of attack. By taking into account all the parts of the word, fewer errors are made as the result of substituting a wrong word identical in only one detail with the one observed.

The visual analysis may be any one of many types. It may be systematic in the left-to-right orientation or it may be varied and include observations in the reverse direction. It may be quick or slow; directed to useful or misleading clues; highly successful or nearly futile. The result depends upon what form the analysis takes.

These are the most important and the most commonly used devices in word recognition. They represent a variety of approaches. The well-equipped pupil will learn to use all of them. Children do learn to read reasonably well by depending upon one or a few of them, but the pupil equipped to use all the types of approaches will learn more readily and will be more rapid and accurate in word recognition.

The Importance of Versatility in Varying the Attack upon Words

It is not enough, however, merely to be able to use each of the types of word observation. Two other achievements are essential. It is essential, first of all, to exercise good judgment in using the technique best suited to an individual word. When the pupil encounters an unfamiliar word, he faces a puzzle. In a typical case the teacher is not standing behind him to tell him what device to use, whether to analyze the word letter by letter or to try to find the syllables, or to search for component words. Some children are more astute in quickly seizing upon those features of the word which will

be most useful in an analysis. This sharp eye for word diagnosis is an important asset.

A second but closely related habit is that of varying the method so that the most effective attack will soon be made. The opposite of this is the tendency to persist in the use of one approach for an undesirably long time. The English language is a highly complex one. Certain words are easily mastered by phonetic attack, letter by letter; others are unphonetic. Some words can easily be divided into syllables; others, even quite long ones, cannot. Some words possess striking profiles, whereas others are rather lacking in conspicuous features and greatly resemble in general shape many other words. Some have striking minute details and in others no part is outstanding. In some words, each of the types of word features is a useful means of recognition. Since a child cannot always tell at a first glance what will be the best method of attack, he must learn to vary his approach until one is found which yields a solution. This means, in effect, that he should look over the word for the purpose of discovering those features with which he is familiar and which will therefore give him a start in diagnosing the word. The best pupils are versatile. They are quick to locate the method suited to the situation. If, during the first observation of the word, the features they note are not helpful they repeat the observation, changing their point of view.

In general, the best procedure is to attempt first to recognize the word as a whole. If a quick glance at the whole configuration does not lead to recognition, the next step is to try to recognize the words in terms of large components. For example, if the child fails to recognize *without* as a whole, he should look for big features, and in doing so he may discover that he knows both of the component words. If he only knows *with* but is unfamiliar with *out*, he may be able to solve it since knowing the first part gives him a very good start. He is especially likely to solve the word if it is in helpful context. Failing to recognize either of the words he may search for small details. In the case of this word the component words cannot be broken up into syllables, but he may recognize some of the phonograms, such as *wi* or *th*. He thus may work out the first word

by phonetic analysis. The second word may offer difficulty but he may possibly know the sound of *ou*. Since it has several sounds he should try one after another, and add the sound *t*. If he is unsuccessful in this he may try to combine the sounds of *o* and *u* and *t*. In this case the task is likely to be difficult unless he shifts from the long sound of *o* to the short sound. It will be noted in dealing with this word that the whole problem is easier the larger the unit the pupil can recognize.

There are other instances in which intermediate steps between recognition of the word as a whole and the sound of individual letters are not helpful. There are still others in which the sounding of individual letters is a formidable and complicated task as, for example, in the case of such a word as *moving*. English words are so unphonetic that a pupil must acquire a variety of approaches and develop flexibility in dealing with individual word forms.

Other Important Requirements for Efficiency in Word Recognition

Certain other factors influence the acquisition of ability to learn and recognize words. Learning words requires an active study of the word forms. Learning to recognize words is similar to learning to recognize faces. Some people are very successful because they make an active study of the face with which they wish to become familiar. They see the face as a whole; they study over the face alertly for the telltale features and having found some they take careful note of them. The person less successful in learning to recognize faces looks rather lazily and fails to apply his attention deliberately to a search for clues. Such a passive attitude in looking at words will result in slow learning of the technique of mastering words.

Words, like faces, have personalities. Some strike one as vivid, interesting, significant, and these are likely to be easily learned. Others seem to be relatively expressionless, unstimulating, and unimportant, and are therefore less likely to be remembered. Some words, in brief, are intrinsically easier to learn.

Other Important Requirements for Efficiency in Word Recognition

In general, it may be said the more rich and challenging the use to which a particular word meaning is put, the more likely the child is to remember that word. It may be said even more broadly that the more rich and challenging the total word-meaning program, the more rapid and effective will be the mastery of words by the class as a whole. If words are made interesting and vivid in their initial presentation and in later use in the classroom, they will tend to be learned more adequately. For example, if the word is presented first in connection with a general topic or activity in which the children are highly interested and if it can be immediately reused in some enterprise important to the child, it is much more likely to be reacted to vigorously and learned than if it is presented in an indifferent situation and later used only in some formal or uninspiring activity. Words can be variously used in the classroom in ways that give them life and importance. For example, they may be frequently used in connection with interesting directions, announcements on the bulletin board, as placards in a store or bazaar, as the legend for a picture the pupil has drawn, or as labels on objects or activities involved in important schoolroom projects. The teacher can show the new words as they are used in store signs, advertisements, catalogues, stories, and other materials. She may even, in certain cases, make up a dramatic episode in which the words are made to play a living part.

On the other hand, difficulties in word recognition may be produced by certain types of classroom activities and by other factors. For example, when too many words are presented at once, many confusions are likely to appear until cleared up by later review. Words which are not reviewed for a considerable time are, of course, likely to be forgotten. Words presented together in one lesson, even if they are unrelated in meaning, tend to be confused until a later review in other context gets them straightened out. A word which is very similar to one presented earlier is likely to be confused with it until both have been encountered together and compared. For example, *went* and *want* are so similar that direct observation and comparison are likely to be needed to enable the pupil clearly to see the difference.

Skill in the art of studying and diagnosing words develops rather rapidly and keeps on improving until well into the intermediate grades or later. Improvements result from reorganizations of the pupil's methods of attack and from adopting new devices. In making some of the advances the pupil may founder for a while and make many errors. He may mistake words which he had previously recognized with ease. The difficulty comes from the fact that in utilizing new techniques he is viewing words in a different way. Seen from a new viewpoint, a word may appear to be quite different. Confusion and periods of discouragement are therefore not necessary evidence of lack of progress or carelessness. Plateaus or even retrogressions in word recognition may be expected as normal features of learning, provided they do not last too long. A teacher should be alert to see that the pupil "comes out of it" in a reasonable period of time.

The Influence of Instruction on Techniques of Word Recognition

The types of guidance provided by the teacher exert much influence. The examiner will find great differences in the techniques prevailing in different classes. Within any one class there will be a wide variation which shows that the pupil learns a good deal on his own initiative, but nevertheless the imprint of the instruction and experiences provided by the teacher are clearly evidenced in the activities shown by the majority of pupils.

Despite the fact that there is, in the typical case, development in skill in word recognition for many years, children often learn to employ practically all the devices in some degree in the first few weeks of beginning reading. If children are left without guidance, they are much more likely to adopt one or two methods for exclusive use, but in a good program of instruction they learn to discover and to use all types of word features in the early stages. That is, pupils will recognize some words promptly on the basis of the general configuration. They will learn to spot certain small words in larger words, as, for example, *up* or *on* in *upon*, or *color* in *coloring*,

References

and they soon become familiar with certain large phonograms, such as the *ight* in *bright* and *night*, and certain syllables, such as the *er* in *baker*, *farmer*. They will also single out certain small phonograms, like the *br* in *bright*, *bring*, and some of the letters. In other words, a pupil properly instructed can proceed to acquire the skill of breaking up words into all the useful components at an early stage. Needless to say, in the beginning he will recognize only a few common or conspicuous features and will be inexperienced and mistaken in many of his trial analyses.

Until recently it was a common mistake to assume that a pupil should first be taught to analyze words on the basis of one element and later to add at intervals each of the others in some assumed order of difficulty. For example, an older practice was first to confine word-analysis activities to recognition and naming of the letters, then to progress to sounding letters, later to phonograms like *br*, and so on to the larger units. The modern policy is to help the pupils learn to utilize all types of word characteristics from the beginning. Methods of securing progress all along the line will be suggested in the following chapters.

References

Most of the books listed in Appendix 1 deal with this topic. Especially pertinent is Chap. ix in *The Teaching of Reading: A Second Report*, Thirty-sixth Yearbook, Part I, National Society for the Study of Education, Public School Publishing Company, Bloomington, Ill., 1937.

Exercises

1. Why is meeting a "new" word in meaningful context helpful to the child in reading it?
2. Explain the necessity for planned experiences for the children in a good beginning reading program. What four types of experience should be provided?
3. What reading skill is developed by the presentation of new words in a meaningful context? What errors are children likely to fall into if new

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words are presented only in context? What is the importance of the child's previous experience in this situation?

4. What are the qualities of the vocabulary used in good beginning reading material?
5. Discuss the true interpretation of "wild guesses" and "careless" errors in the early stages of reading.
6. Describe the character of eye movement during the inspection of an object or picture. What special eye-movement habit is fundamental to the adequate development of reading skills? At what point do reversal errors disappear? Under what conditions are they occasionally made by adults?
7. Describe some of the kinds of clues frequently used by young children in recognizing and differentiating words. Discuss the values and limitations of each type of clue named if used by the child as the sole method of word recognition.
8. How may versatility in word attack be developed? What is the influence of the child's attitude upon his progress in word-recognition techniques? How are well-planned classroom experiences important in developing good word-recognition ability? What errors in presentation are especially to be avoided?

chapter 8 Measurement and Diagnosis of
Skills Involved in Developing
a Reading Vocabulary

As pointed out in Chaps. 3 and 7, the pupil who has a limited reading vocabulary or has difficulty in word recognition is handicapped in all phases of reading comprehension. The most serious cases of reading disability, including the nonreaders, are instances in which pupils have failed to acquire a technique which enables them to recognize words. Between techniques so inadequate as to make recognition of words utterly impossible and the most efficient equipment of word-recognition skills are many intermediate stages. From the first lessons in reading through the upper grades pupils will be found whose techniques are more or less seriously defective and whose reading in general suffers slightly or seriously from their inability to accumulate a large reading vocabulary and from difficulties in dealing with unfamiliar words during the reading process. Difficulties in word recognition are so numerous

and so serious that we shall give special attention to the methods of developing optimum abilities and to the diagnosing and improvement of inappropriate techniques.

Causes of Difficulty in Word Recognition

All the causes of reading difficulty previously mentioned, especially in Chaps. 1 and 4, may be directly or indirectly the source of difficulty in word recognition. A low intellectual level, inferior verbal aptitude, limited experience in hearing and speaking the language, a meager experiential background, speech defects, defects of vision and hearing, poor health, absence from school at critical times, emotional instability, misleading motivation, emotional blockings produced by unfortunate social adjustments—all these and other factors should be investigated as far as possible among children who have difficulty in learning to recognize words. The more serious their difficulty the more carefully such causal factors should be explored.

Even among children who are normal or superior in all or most of the factors mentioned above, difficulties in learning to recognize words, even very serious ones, may be found. They may take the form of limited, lopsided, and otherwise inappropriate techniques. They may result from misunderstandings or accidental errors in the process of learning, or carrying over from other related experience techniques which do not work well, or from overemphasis or underemphasis on some feature of the teaching procedure or materials.

Instead of discussing these influences in detail at this point, we shall take them up during the consideration of the particular techniques at various points in this and the following chapters.

Group Tests of Reading Vocabulary and Word Recognition

The Gates reading tests include subtests for the measurement of general achievement in reading vocabulary and word recognition at all grade levels from the prereading stage through Grade 10. A general description of these tests was given in Chap. 3.

Group Tests of Reading Vocabulary and Word Recognition

The *Gates Reading Readiness Tests* include two subtests for measuring general familiarity with printed word forms. These are Test 2, Word Meaning, and Test 3, Word Card Matching.

The *Gates Primary Reading Test*, which may be used in the primary reading stage in Grade 1 and up to the middle of Grade 2 for an average class, includes test Type 1, Word Recognition, which measures the pupil's ability to recognize and to comprehend the meaning of representative primary-grade words arranged in order of difficulty. The *Gates Advanced Primary Reading Test*, Type 1, Word Recognition, serves the same purpose for the average class during the second half of the second grade and throughout the third grade.

The *Gates Reading Survey* includes a Vocabulary Test, for use from the middle of Grade 3 through the tenth grade. This test requires the pupil to recognize the word and its meaning in a series of words beginning with very simple and easy ones and increasing in difficulty to the words of high-school or even college level.

All the tests above are group tests and are designed to enable the examiner to determine the approximate grade status of a pupil's word recognition. The test scores may be converted into grade scores for this purpose, as explained in Chap. 3. The results of the test thus enable the teacher to tell whether the pupil is up to or above or below the typical pupils in the grade in which he is functioning in reading vocabulary. Thus if the pupil is in the middle of the third grade and receives a grade score of 3.5 in the word recognition or vocabulary test he would be exactly typical of pupils in general at that grade level. If his score were grade 4.5 he would be roughly a year in advance of his grade position; if it were 2.5 he would be roughly a year retarded.

The teacher will want to know how the pupil compares with others in the same class as well as with typical American children. The latter information she readily secures by comparing the scores of different children in the class. Further information concerning the pupil's status in reading vocabulary is made available when the other tests in each battery are also given. If a pupil's grade status in paragraph reading, for example, is 4.5, whereas his grade score in

reading vocabulary is 3.5, there is a suggestion that the techniques of working out the recognition and meaning of isolated words have lagged behind the ability to get the substance of meaningful paragraphs. In such a case a more detailed study of the pupil's word-recognition techniques is indicated in order to reveal the nature of his specific difficulties or deficiencies in word recognition and to provide the most effective treatment. To a limited extent, therefore, each battery provides not only a knowledge of the pupil's absolute status in reading vocabulary and word recognition, but it is also somewhat diagnostic in that it permits a comparison of word recognition with other important abilities.

Individual Tests for More Precise Diagnosis of Word Recognition

The appraisals mentioned above are obtained by means of group tests. More exact and detailed diagnosis of abilities and difficulties in word recognition are made available in a series of individual tests. All these tests are part of the *Gates Reading Diagnostic Tests*. The main purposes for which these tests are used are outlined in this section. Detailed instructions for giving the tests and securing the various types of scores and other appraisals are given in Appendix 2.

Word recognition is diagnosed by the *Gates Reading Diagnostic Test* by several different means.

1. *Standardized scores.* Most of the diagnostic tests yield an objective score. By means of tables of norms these scores can be converted into an age score or grade score in the same way as the scores obtained in the group test mentioned above. The age or grade score for each test indicates the pupil's status or degree of advancement. Thus for each technique or component skill in word recognition the level or grade status of a pupil's performance can be obtained.

The age or grade scores for the several diagnostic tests can be compared with each other. Thus, for example, the examiner can determine whether a particular pupil's ability to recognize individual syllables in words is about the same as, or higher or lower

Individual Tests for More Precise Diagnosis of Word Recognition

than, his ability to blend individual letter sounds. By making such comparison the examiner can determine the relative strength or weakness of the several constituent techniques involved in word recognition.

2. *Classification of errors.* In practically all the diagnostic tests the examiner can determine the frequency and character of errors made. For example, in one test the pupil is asked to work out the pronunciation of a series of isolated words ranging from easy to hard words. The pupil makes his responses orally and the examiner can record them. Later the errors may be grouped into a series of types, and tables of norms are provided by means of which each type of error made by this pupil can be compared with the frequency with which the average pupil makes the same type of error. It is possible to determine, for example, whether a pupil makes more or fewer reversal errors than does the average child of the same general word-recognition ability. Thus the pupil's characteristic weaknesses may be determined.
3. *Observation of pupil's performance.* In many of the tests the examiner can secure additional information by noting how the pupil performs. For example, when the pupil is attempting to work out the pronunciation of a series of isolated words the examiner may note whether he takes a quick glance and makes an immediate response or carries out some more detailed form of study. The examiner may note that the pupil is observing and sounding each letter and later trying to blend the letter sounds. Another pupil may attempt to break up the same type of word into syllables. In some instances, the examiner may have learned to observe the eye movements more or less well. In these ways it is possible by observing the individual performance to gain considerable insight into the methods of work employed by the pupil. In many instances the pupil, on request, can report quite reliably concerning the way he went about the task of figuring out the word. In these cases the examiner does not have an objective record against which to compare the pupil's performance. He may, however, size up the pupil's performance in the light of his knowledge of good and poor techniques in general.

In the remainder of this chapter the various diagnostic tests of value in appraising the pupil's abilities and difficulties in word recognition are considered.

The Gates Oral Reading Test

Nature of the Test. The *Gates Oral Reading Test*, of which there are two forms, consists of seven paragraphs beginning with a very easy one which can be read by children before the end of the first grade and ending with a rather difficult one of about the eighth-grade level. Detailed directions for giving this test are given in Appendix 2. In general, the procedure consists in asking the pupil to read each paragraph aloud as well as he can. The examiner keeps a detailed record of the pupil's hesitations, mispronunciations, omissions of a word or part of a word, substitutions of one word for another, insertion of words in the text, and repetitions. All these data are kept for later analysis. As the pupil does the reading, the examiner makes notes concerning his performance. A check list is printed in the pupil's Record Booklet (page 4) for convenience in securing a permanent record of various characteristics of the pupil's reading performance. The examiner typically makes a summary of other observations.

The examiner tabulates the number of errors according to a definite system and by using a table of norms secures a general rating, or a grade score, or an age score for oral reading in general.

Use of the Gates Oral Reading Test in Diagnosis. One of the major purposes of introducing the Oral Reading Test is that of providing a means for determining the extent to which a pupil uses context or meaning clues on the one hand and word-form clues on the other, in word recognition. In this test all words are in context. The more skilled the pupil is in utilizing context clues in working out the recognition, pronunciation, and meaning of unfamiliar words the better his score on the test should be. There are several ways in which the pupil's skill in using context clues may be estimated.

In the first place, evidence is provided by comparing the pupil's

The Gates Oral Reading Test

grade score in the Oral Reading Test with his grade score in the Word Perception Test based on flash presentation and the Untimed Word Pronunciation Test. At this point we will consider only the latter test.

This test, described in Chap. 3, consists of a series of words arranged in a column without context of any kind. Consequently, a score on this test depends entirely on the pupil's ability to work out the recognition and pronunciation of the word from study of the printed form itself. The grade score thus obtained may be compared with the grade score secured on the Oral Reading Test.

If the pupil secures a distinctly higher grade score on the Oral Reading Test than on the Word Recognition Test, the indication is that, compared to the average child, he makes more effective use of the context clues. If, on the other hand, his score on the Oral Reading Test is clearly lower than his score in the Word Pronunciation Test it is probable that the pupil, compared with the average child, depends more upon the word-form clues and is relatively less effective in the use of context clues.

It may be noted that substantially the same evidence can be secured by comparing scores from the Word Recognition Test with the Paragraph Reading Test from the *Gates Group Primary Reading Test* or the *Gates Advanced Primary Reading Test*, or the *Gates Reading Survey for Grades 3 to 10*. The evidence obtained from the individual tests would, for this purpose alone, merely be additional evidence which, in many instances, may be desirable. The main purpose of the individual test is to permit a more detailed diagnosis. In doubtful cases, both types of tests may be used.

As an examiner gains experience he can make shrewd observations of the pupil's skill in utilizing context clues by observing his performance in the Oral Reading Test. A pupil who makes extensive use of context clues and depends primarily upon them, typically reads fairly fluently and tends to give a rendition that makes sense. What he says may not always convey the meaning actually printed. Especially when the material has become rather difficult the pupil may really recognize relatively few words and fill in the remainder. The result may be a distortion of the thought to a greater or less

degree, but it is apparent that the pupil is trying to render a meaningful account. He may begin the test with fairly good comprehension of the meaning of the paragraph as a whole, but when he gets into quite difficult paragraphs he may center his effort on getting the meaning of individual sentences or even phrases. This may, in some instances, give a distorted thought to the paragraph meaning, although some of the units may be fairly well understood.

In difficult material the pupils who depend greatly upon context clues may be detected by the technique they use. Frequently they reread a section either aloud or silently to try to clear up the meaning. They may show a relatively large number of alterations in the text, such as substitutions, insertions, and repetitions.

The pupils who are relatively weak in using context clues may be detected by the difference in their attack upon the unfamiliar word. For one thing, they are likely to confine themselves to the word itself, and show fewer cases of rereading the preceding material to clarify the meaning. They may hesitate while they study an individual word form for some time. Their errors tend more frequently to be words similar in appearance but different in meaning. If their method of study is not deliberate and analytical they will show a tendency to pronounce a word resembling as a whole or in some detail the one in the text with comparatively little regard to its meaning. When the material becomes very difficult these pupils may make still less use of context clues and depend almost exclusively upon direct study of the word form. The result in this case is likely to be a series of words comprising a sentence with little or no meaning. These pupils, furthermore, are less likely than those making more use of context clues to be able to recall much of the thought contained in the more difficult passages. In using this test it is often advisable to ask a pupil, after he has completed a paragraph which is difficult for him, to give the thought contained in it. In this way one may estimate the degree to which the pupil is understanding the material read.

Errors made in the first four paragraphs in the *Gates Oral Reading Test* should be carefully recorded and later classified and compared with the tables of norms, as explained in the directions for

this test in Appendix 2. These norms are based upon a classification of errors of a large number of children in Grades 1 through 5, inclusive. By means of these tables it is possible to judge whether the pupil makes more errors, an average number, or fewer errors than the typical child of the same all-round ability in the case of omissions, additions, repetitions, and mispronunciations. Another table enables the examiner to determine whether the pupil, in comparison with average children, makes fewer, or about the same as, or more mispronunciation errors of each of the following types: reversals, partial reversals, and total reversals (the sum of reversals and partial reversals); wrong beginnings; wrong middles; wrong endings; and words wrong in several parts.

Omissions represent either lack of techniques of attacking words, techniques that are slow and laborious to use, or some type of personal attitude—timidity, negativism—in the test situation. It is advisable to urge the pupil who refuses many words to try or “guess,” since the type of attack can be more clearly observed when the pupil makes a response.

Additions of whole words are made so infrequently by typical children that one should examine closely the work of a pupil who shows a markedly greater number of such errors. In general, if a pupil makes more than three or four such errors, attention should be given to the possible causes. In such cases, the errors are often due to reading too fast (for the child in question) or depending greatly upon context rather than word-form clues. When the additions are due to reading relatively rapidly or making extensive use of context clues or both simultaneously, they may be desirable rather than undesirable signs, provided the pupil can largely eliminate them when requested to read more carefully or slowly. When they are persistent, they may indicate inadequate skill in following the line of print or inadequate perception of individual word forms, or both, or a variable carelessness in looking at what is being read. Large numbers of additions appear also in “imaginative readers” or pupils who make up a story from such suggestions as they can get. These pupils are usually poor literal readers and may need various sorts of help.

Repetitions are likely to increase as the reading becomes more rapid. Repetitions in and of themselves are neither a good nor a bad sign. They often result from hasty reading in which the pupil, after losing the thread of the thought, repeats what was just read while he looks ahead or "catches up with himself." They often represent hesitations while thinking about and studying the next word or phrase. Sometimes they result from reviews of certain material to revive or check up on the content. In these instances, while repetition may not itself be very desirable, it goes on simultaneously with a desirable type of review. In other cases, repetitions represent confusion or a loss of place on the line, due either to inadequate perception or certain types of defect in motor control. Excessive repetitions invite further study.

*Mispronunciations.*¹ Any excess over the M scores in (e) *full reversals* or (f) *reversals of parts* is an unfavorable symptom and should be studied further. Either wrong directional habits or poor phonetic approaches to words, or both, may be causing these errors.

An excess of errors over the M scores in (h) *wrong word beginning*, indicates lack of adequate perception of the initial part of the word. It frequently accompanies reversal errors and is often a symptom of failure consistently to observe the words in the proper (left to right) direction. Indeed, in the writer's opinion, pupils who make as many errors as those indicated by the M scores for total mispronunciations of twenty-five or more should be instructed in the direction of attack and in observing the initial parts of words.

The M scores for (i) *wrong middle parts* of words are lower than those for *wrong word beginnings* (h) and *wrong word endings* (j), partly because many of the words in the test are of one or two syllables and hence have no clearly pronounced middle part or syllable. In general, mispronunciation of middle syllables is not so serious as mispronunciation of the initial syllable. An inspection of the norm tables shows that "wrong middle" errors continue in the M scores among the abler readers after the M scores for *wrong beginnings* become zero. Pupils who are excessively careless of the middle of words should have their attention drawn to the tendency and

¹ The meaning of M, L, and VL scores is explained in Appendix 2.

should be helped to learn to see this part of the word more clearly.

As the typical pupil learns to read, he acquires the habit of depending more on the initial part of the word than on the final part. Hence, errors on the final part (*j*) become proportionately greater. This is obvious in Table 6 in Appendix 2. In general, it is a better sign to find that the pupil's errors are largely errors on the final part than to find that they are largely on the initial part.

Usually, with the poorest readers, the excess of mispronunciations falls in (*k*), *wrong in several parts*, because if the child makes an effort to read an unknown word, his attempt is likely to be a guess and to have little relationship to the phonetic elements in the word. In this category are included mispronunciations in which there is no obvious reversal or rearrangement of word parts suggestive of lack of proper left-to-right eye movements over the word. These errors, presumably, are due to failures to recognize and pronounce the parts correctly while observing them in proper order. Errors are due to unfamiliarity with parts or to poor observation or analysis of them. In this category would be included errors of substitution of quite different words, perhaps of similar meanings. Errors of this type often occur when a pupil makes much use of context clues. Excessive errors of this kind suggest lack of clear-cut perception of the word form or else almost complete absence of phonetic skills. They invite study to reveal what word-form characteristics, if any, the pupil depends upon mainly, and corrective instruction designed to assist the pupil to utilize better methods.

A fuller discussion of reversal errors as revealed by this and other tests will be given later in this chapter and in Chap. 10, which is devoted entirely to this problem.

Use of the Gates Word Perception and Analysis, Flash Presentation Tests

Nature of the Test. This test consists of two columns of isolated words. The exposure of each word, for one-half second, is too brief to give the pupil an opportunity to make any type of detailed study of the word form. Since the words are presented in isolation,

context clues cannot be used. The test measures the pupil's ability to recognize a word instantly.

Method of Using the Test. A table of norms enables the examiner to determine the age or grade score of the pupil's quick recognition of words without context clues. This grade score may be compared with the grade score obtained in the Oral Reading Test and in the group tests of word recognition and comprehension. If it is similar to the score in an oral or silent reading test it indicates that the pupil is typical or average in his quick recognition of isolated words. This test is also used, as will be pointed out later, in appraising the pupil's equipment for learning to perceive words in thought units, that is, more than one word at a time. Ability to perceive more than one word at once depends upon achieving a type of word recognition which operates accurately in one brief fixation. Until this stage has been reached in dealing with individual words, it cannot be expected to function with two or more words at once. The score in quick recognition of words should also be compared with the status obtained in the Untimed Word Pronunciation Test.

Use of the Word Perception and Analysis Untimed Presentation Test

Nature of the Test. This test uses columns of words equivalent in difficulty to those employed in the preceding test. The difference is that, in the case of the untimed presentation, the child is allowed to study a word for a time before making his trial pronunciation. Since this test is composed wholly of isolated words, the device of deriving recognition from context clues is eliminated and other devices may be observed in unadulterated form.

Methods of Using the Test. As pointed out above in discussing the *Gates Oral Reading Test*, a comparison of the grade scores in the oral reading and the flash presentation, and the untimed presentation of word tests suggests the relative extent to which the pupil utilizes context clues as compared with word-form clues. The Untimed Word Pronunciation Test is also designed for another purpose, namely, that of observing the methods used by a pupil in

Use of the Word Perception and Analysis Untimed Presentation Test

working out the recognition and pronunciation of unfamiliar words.

In giving this test the pupil is permitted to start with the easiest words and gradually to work up to words which he does not readily recognize. When the unfamiliar words are reached the examiner should attempt to determine the type of attack the pupil employs. The following check list, which is printed on the pupil's record blank, indicates some of the characteristics to be sought for:

- _____ Too quick and superficial response.
- _____ Too slow, labored, and detailed study.
- _____ Gives up if first response is wrong.
- _____ Lacks any consistent method.
- _____ Depends mainly on general appearance of word.
- _____ Studies word form in detail but lacks phonetic attack.
- _____ Depends mainly on naming the letters (spelling method).
- _____ Recognizes certain syllables, phonograms, and letter sounds but does not blend well.
- _____ Seems to have an inadequate sense of sound values of letters and syllables.

It is sometimes difficult to distinguish between analysis by visual perception only and study involving the naming or sounding of letters, phonograms, or syllables. Usually the latter types of attacks are accompanied by lip movements but this is not invariably the case. Among younger children audible sounds are often apparent. When neither lip movements nor audible sounds appear, the examiner may get some clues by observing the eye movements. The majority of children are able, moreover, to give a fairly good account of what they are doing. Few children actually know in any precise way the techniques they are employing, but they can often report suggestive evidence and now and then a pupil will give a very accurate description of what he is trying to do. In many cases the child will respond to a request to "do it out loud." In order to get as comprehensive evidence as possible concerning the pupil's attack, the examiner should not hesitate to ask the pupil to try to work out additional words after the test has been completed. By noting his test record she can determine the approximate complexity

of words which would be most useful for diagnostic purposes. A number of other words may be typed or pointed to in a book to continue the test. In these cases, the pupil may be asked to work out loud or to report his method.

The grade score on this test may be compared with the grade score on the *Gates Oral Reading Test* and the *Word Recognition and Analysis, Flash Presentation Test*. The first comparison, as previously indicated, suggests the extent to which context clues are used. Comparison of the untimed with the quick presentation test of isolated words may suggest an important need in further work. If the grade scores in the two tests are about the same, the indication is that the pupil's quick recognition technique, as it would be employed in ordinary reading, is keeping a typical pace with the detailed analysis of unfamiliar words. If the pupil's grade score on the Flash Presentation Test quite noticeably excels his score on the untimed test, the indication is that the pupil would profit by the improvement of techniques in dealing with unfamiliar words in isolation. If the pupil's grade score on the untimed test markedly excels his grade score on the Flash Presentation Test, the evidence is that the pupil has specialized unduly in the detailed analytical type of word analysis and is less advanced than he might well be in the quick type of word recognition. For smooth and rapid reading, speedy and accurate word recognition is quite essential. The actual technique employed in working out the recognition of unfamiliar words should, in such a case, be examined with care. One may be suspicious in advance that the pupil is not taking sufficient advantage of the possibilities of recognizing words on the basis of the total configuration or the larger features. If this is the case, guidance in recognizing words without noting so much detail may be of value.

In addition to classifying and interpreting the errors by means of the standard norms, the examiner should observe the pupil's performance at all times during the test. A check list of characteristics of word recognition is printed in the individual record form for this test. The following items are listed and the instructor may make additional notes:

Further Tests of Visual and Auditory Perception of Words

- _____ Usually "refuses" unfamiliar words.
- _____ Usually gives a wrong word quickly and proceeds.
- _____ Usually makes a detailed study of unfamiliar words with audible trials.
- _____ Usually stops and studies inaudibly.
- _____ Appears to depend mainly on general configuration.
- _____ Appears to depend mainly on syllabication.
- _____ Appears to depend mainly on phonograms like *tr* and letter sounds.
- _____ Appears to depend mainly on letter sounds.
- _____ Appears to depend mainly on spelling out the word.
- _____ Tries various methods of attack.
- _____ Gives up very easily.
- _____ Too quick and superficial.
- _____ Too slow and labored.
- _____ Lacks any consistent method of attack.

Further Tests of Visual and Auditory Perception of Words

The *Gates Oral Reading Test* and the two tests of perception of isolated words provide the means of observing visual, phonetic, and other word-perception skills in the actual process of reading. Using the tests together enables one also to estimate a pupil's relative ability in utilizing context clues in comparison with word-form clues. With experience the examiner will find it possible to diagnose the various techniques of word perception quite fully by means of this test alone. Certain additional tests of more analytical and also somewhat more artificial character are, however, provided.

Additional tests of visual and auditory perception of words are included for two purposes: In the first place they enable the examiner to appraise each of several of the important techniques in word perception one at a time. They yield a quantitative score as well as provide the means of additional opportunity for subjective analysis. The quantitative scores for one technique may be compared with those for others. This comparison assists the examiner to learn to judge the amount and character of the analytic abilities at different stages of advancement. Working with the more detailed tests, there-

fore, enables the examiner to improve the validity of his observations more rapidly than would otherwise be possible.

In certain cases, moreover, it may be very difficult to determine the nature of the pupil's abilities from the preceding tests. The work may be done largely silently and the pupil may be unable to report much concerning the process. In this case giving the analytic tests may be necessary to get a reasonably clear idea of how the pupil actually attacks the word-recognition problems.

Finally, it is desirable, in some instances, especially in the case of seriously retarded readers or nonreaders, to make an inventory of the pupil's knowledge of certain items, such as the names and sounds of the individual letters, or to determine exactly whether he can, under any circumstances, utilize some of the basal techniques.

The more experience the examiner has, the less often he will find it necessary to give the several detailed diagnostic tests next to be described. Even the inexperienced examiner need not give the detailed tests to all reading cases. These tests are primarily of value in analyzing the difficulties of the very serious cases.

Use of the Tests of Visual Word-perception Techniques

Nature of the Test. The analytic examination of the visual word-perception techniques is based upon a team of seven tests. These tests are designed to enable the examiner to make an inventory of familiarity with certain word-form elements and certain basal skills involved in the visual study of words and in the effort to work out the recognition and pronunciation of unfamiliar words. They cover the following items:

1. Syllabication Test. This is a test of ability to work out the recognition and pronunciation of nonsense words made up of syllables found with high frequency in a primer reading vocabulary, such as *immo*, *delow*, *indaril*.
2. Recognition of Syllables. This is a test of ability to recognize and pronounce the most common syllables, such as *ark*, *ick*, and *er*, in isolation.

Use of the Visual Perception Techniques, Tests 1, 2, and 3

3. Recognition of Phonograms. This is a test of ability to recognize and pronounce the most common phonograms, such as *la, st, ai*.
4. Blending Letter Sounds. This is a test of ability to translate printed letters into sounds and to blend the sounds to produce a word.
5. Giving Individual Letter Sounds. This tests merely the ability to give the sound corresponding to each of the individual printed letters.
6. Reading Capital Letters: ability to recognize and name the capital letters.
7. Reading Small Letters: ability to recognize and name the lower-case letters.

Giving the Tests. These tests are arranged roughly in an order of difficulty or complexity, beginning with ability to work out the pronunciation of nonsense words and ending with the ability to name an individual letter.

It will be found that certain very poor readers and nonreaders are unable to do anything with some of the first tests in the series. It is neither necessary nor advisable to struggle through all the tests in these cases. The examiner should merely sample the tests and, finding the pupil unable to do them, move on until the series is covered. The inexperienced examiner may find, furthermore, that some of his cases get substantially perfect scores in all the tests. This is an indication not merely that it was unnecessary to give them but that the pupil has a mastery of these elementary word elements and techniques. Before using any of these tests the precise directions for administering them and for interpreting results given in Appendix 2 should be studied.

Use of the Visual Perception Techniques, Tests 1, 2, and 3

Visual Perception Techniques, Test 1: Syllabication. As stated above, this test consists of nonsense words made up of two or more syllables which appear with high frequency in the words most commonly used in the primary-grade reading program and in miscellaneous children's literature. They are given in isolation and can-

not therefore be figured out from context clues. The pupil must work out the pronunciation of the word by some kind of analysis.

This test is designed to measure how well a pupil can work out a reasonable pronunciation of polysyllabic words which are quite unfamiliar as totals but which are made up of the most common word elements. All the nonsense words in this test can be worked out by syllabication, that is, by examining the word, noting the syllables in it, recognizing the syllables and their sounds, and then combining them into a total word sound. In working out these words a child may break them up into different parts; for example, the word *hashola* may be worked out by dividing it in any one of the following ways and then combining the parts: *hash-o-la*; *hash-ola*; *has-ho-la*. The word *sboryold* may be broken up into *sbory-old*; *shor-yold*; *sb-ory-old*, and in other ways.

The purpose of this test is to determine whether the pupil can break the word up into syllables or other large parts and produce an acceptable total word. He is given credit only for working the word out primarily on the basis of syllables or, if in some instances the unit used is a phonogram not comprising an actual syllable, as, for example, *st* or *sh*, full credit is allowed. For example, if the child works out the syllable combination *stadever* in such units as *st-ad-ever* or *st-ad-ev-er*, he is given full credit. If he should work this word out *st-ad-c-ver*, he would also be given full credit because although he used a single letter in one case he followed, on the whole, a method which showed his ability to find and use the syllables and larger parts. If, on the other hand, he is able to work out the word only by naming and sounding the individual letters, one at a time, or if he is required to depend upon different devices chiefly, that is, if he translates, say, half or more of the word into letters instead of dividing each word into syllables and larger units, he is not given credit.

The reason for this arbitrary policy is that this test is designed to see how well a pupil can work out words on the basis of syllables or syllables combined with phonograms of two or more letters. It is not, in other words, primarily a question of whether he can work out the words by any method at all, but whether he has a desirable

amount of skill in working out words on the basis of larger units, whether in general he has developed some skill in syllabication. Tests to be mentioned later are provided for measuring his ability to work out words by sounding the individual letters. If credit for working out words by this method were given in the Syllabication Test, one would not discover the pupil's actual ability in syllabication.

A pupil may obtain a relatively low score in the syllabication test as a result of one or more of the following limitations:

1. Inability to break up the total word into syllables and other large parts; that is, inability to see and deal with the syllables and other larger parts, as such, in the word.
2. Inability to recognize and pronounce or give the sounds of the individual syllables or larger phonograms in the word.
3. Inability to blend or combine syllables and other larger units after they have been recognized individually.

If a pupil is reasonably successful on this test he is certain to possess in reasonable degree all the three abilities above mentioned. If, on the other hand, his score on the Syllabication Test is relatively poor this fact in itself does not tell on which one or more of the above abilities he is weak. He may be weak in only one of them or two or all three of them. Additional tests must therefore be given to the pupil who does relatively poorly in the syllabication test.

The first question is how to determine whether the pupil is average or better than average or poor in the Syllabication Test. To do this the test should be given strictly according to the directions contained in Appendix 2, and the grade score determined by means of the table of norms. This grade score should then be compared with actual grade status. Suppose, for example, that the pupil is in the middle of the third grade, that is, his actual grade status is 3.5. If the grade score on the Syllabication Test is 3.5 or better, he has ability equal to the average child in the middle of the third grade or better. If the grade score is reliably lower than this, he has some degree of weakness. How serious the retardation is may be estimated by referring to the "Table for Rating the Degrees of Retardation Represented by Pupil's Grade Score." This is Table 1 in Appendix 2. This table shows that, in comparison with the actual grade posi-

tion of 3.5 a grade score in the Syllabication Test of 2.6 is regarded as definitely low. One of 2.1 is regarded as "very low." For this child, a grade score in the Syllabication Test of, say, 3.1, is to be regarded as slightly, but not seriously, low.¹

Another question is whether the pupil's score in this test, even if it is below the average for his grade, is relatively low in comparison with other aspects of reading ability. His grade score in the test should therefore be compared with his grade score in silent reading and in oral reading, or both. If in the case of the pupil above mentioned the oral and silent reading tests give grade scores of about 3.5, then a score in the Syllabication Test of 2.5 would have to be regarded as relatively low. This pupil is weak in syllabication in comparison with his general ability in silent and oral reading. For some reason he has failed to develop this important skill. For a pupil with a reading ability of 3.5, skill in working out words on the basis of syllabication is very important and will become increasingly so. Therefore, this retardation must be regarded as indicating a clear-cut need for assistance in developing skill in syllabication.

Assuming now that a pupil's silent and oral reading gave grade scores of about 2.7, approximately the same as that obtained in the Syllabication Test, if this pupil is at a grade 3.5 level in school he is, of course, backward in reading for his grade, but he is no more backward in syllabication than in other phases of reading. So far as these data alone are concerned, syllabication then is part of the picture of general retardation and not a conspicuous special disability.

It is advisable also to compare the score on the Syllabication Test with the score in the Visual Word Recognition and Analysis Tests, especially the untimed pronunciation test. If the score on the Syllabication Test is approximately the same as that in the untimed Word Recognition and Analysis Tests, the indication is that the technique of syllabication is not especially retarded in comparison with other word-recognition techniques. If, on the other hand, the score on the Syllabication Test was, say, approximately a grade

¹ If the reader is not yet familiar with the technique of securing these ratings he should carefully study its discussion in Appendix 2.

lower than the score on Word Pronunciation, untimed, the indication is that here is a special deficiency in syllabication. This pupil gets his higher score on word pronunciation by means of other devices, which may in many instances be less suitable and trustworthy than syllabication. The implication is that if he had more skill in breaking words up into syllables or larger parts and combining them, his all-round ability in word recognition and word pronunciation would be improved. Here is a case, then, in which special assistance in improving syllabication techniques is desirable.

Visual Perception Techniques, Test 2: Recognition of Syllables; and Test 3: Recognition of Phonograms. The first of these tests consists of twenty syllables, such as *ark*, *ine*, *ver*, and the second consists of twenty two-letter items, such as *la*, *ir*, *st*, *ai*. The first test consists, on the whole, of larger units, most of them containing three letters. The units are all syllables met with a high degree of frequency. The second test includes some combinations which, strictly speaking, are syllables, such as *un* and *ow*, but includes others, such as *ne*, *st*, *oo*, that are more commonly regarded as phonograms. In no case does an item contain more than two letters.

These two tests are introduced for those pupils whose grade score on the Syllabication Test is relatively low. It is given for the purpose of assisting to determine more definitely the cause of the difficulty in the Syllabication Test.

In giving these tests credit is allowed only for reasonable pronunciation of the syllable or phonogram as a unit. The purpose of the test is to see whether the pupil can promptly recognize and pronounce these familiar syllables and phonograms. If he cannot pronounce them after a glance, but has to name the individual letters or sound and blend the individual letters, he should be given no credit. Later tests will give credit for this ability. If he can get these units only by such a detailed analysis, he obviously is weak in the prompt recognition and pronunciation of syllables as such.

After the tests are given the tables of norms should be used to secure the grade scores. These scores are compared with the score in the Syllabication Test. If the pupil's score on these two tests combined and averaged is about the same as the grade score on the

Syllabication Test, it is apparent that the pupil's difficulty in syllabication is not primarily due to inability to recognize the syllables and phonograms themselves. The low score in syllabication, then, must be due either to the pupil's inability to see these units in the larger "words" or, having seen them, to keep them in mind and blend them. In such a case, further information can be secured by observing the pupil's performance on additional nonsense words—such as some of those in the second form of the test or others made up by the examiner, or in working with unfamiliar English words.

A good procedure would be for the examiner to make up some nonsense words himself, using the actual syllables and phonograms found in the two tests in this series, and see how the pupil performs. For example, the examiner may ask the pupil to say to him aloud the parts, one at a time, that he is able to find in these words. Thus he can tell whether the pupil can actually break a total unit up into parts. He can then ask him to try to combine or blend the parts and get a reasonably good idea of this phase of his ability. This additional step will not be necessary if the examiner got sufficient clues when he gave the Syllabication Test in the first place.

If the pupil's grade scores in the Recognition of Syllables and the Recognition of Phonograms Test are clearly higher than the score in the Syllabication Test, this fact itself indicates that his weakness is in finding the familiar syllables in the total word or in combining them, or both, since this situation shows that he is relatively good in pronouncing the syllables when they are given one at a time.

If the pupil's scores in the Recognition of Syllables Test and in the Recognition of Phonograms Test are on the average lower than the score in the Syllabication Test, the suggestion is that the pupil is comparatively unfamiliar with the syllables themselves and relatively good in finding them in word totals and in blending them. Such a pupil has not built up as clear-cut a familiarity with the more common phonograms as the pupil of the same general ability in syllabication has done. His weakness is in the range and accuracy of his recognition of the items themselves rather than in the process of diagnosing and combining them into word totals.

It is apparent that remedial work will differ according to the type of weakness found. Some children need help in increasing their familiarity with syllables and phonograms as such. They need exercises which bring the isolated units into more clear-cut relief and result in their learning how to recognize them quickly and promptly exactly as they would recognize small words, such as *cat*, *dog*, *pig*. Other children may need help especially in finding the familiar units in an unfamiliar test word. They need assistance in looking over a word in such a way as to locate the familiar items within it. Others need particular help in repeating these syllables and phonetic units after they have found them and recognizing them in such a way as to sense the total word which will be formed.

If there is a fairly wide discrepancy between the pupil's grade score on the Recognition of Syllables Test and the grade score on the Recognition of Phonograms Test, this information may be of some diagnostic value. If the pupil is relatively poor in the recognition of syllables it means that he should be given guidance in finding these typically larger units. If the reverse is true he may need help in finding the smaller items, especially the phonetic items, which do not form a clear-cut syllable, such as *st*, *cl*, and so forth. The abilities measured by these three tests, the Syllabication Test and the tests of Recognition of Syllables and Recognition of Phonograms, develop rather steadily but slowly during the first two grades and more rapidly in grades 3 and 4.

It will be worth while to observe the grade scores corresponding to different raw scores in the table of norms for these tests. Note, for example, that in the Syllabication Test the average reader at the end of the second grade gets only two syllables correct. Note in the table of norms that grade score 2.0, which means average reading ability at the beginning of the second grade, corresponds to a raw score of 2. The average child at the beginning of the third grade gets seven correct, and thereafter growth is rather more rapid. At the beginning of the fourth grade he gets seventeen correct, and by the time the average child reaches grade position of 4.6 he does all twenty without error. In the Recognition of Syllables Test the pupil knows but few during the first grade. The raw score of 3 cor-

responds to grade position 1.9 and he gets nineteen or practically all of them at grade position of 3.6. Growth in recognition of the phonograms is similar. In other words, working out words on the basis of syllables and larger phonograms is a skill that a child begins to acquire early in the first grade but it takes considerable time to achieve a high, absolute level of efficiency. In appraising the significance of the showing of a class on these tests, the teacher may properly take into account her own observations. She may, as many do, feel that a more rapid development in the ability to recognize words on the basis of syllables than that indicated by the progression of scores in the tables of norms is desirable. The author has found that, in classes given a particularly rich and well-rounded program of word analysis, growth in these abilities tends to run ahead of the norms. He is inclined to think that this is somewhat better than the situation in which the children are taught to use more exclusively the letter-by-letter sounding phonetic system, although the latter is necessary and important, especially in the lower grades.

Visual Perception Techniques, Tests 4, 5, 6, and 7

This series of tests is designed to determine the extent to which a pupil can work out the pronunciation of words by recognizing and sounding the letters and blending them into word totals and by naming the individual letters. The tests consist of Test 4, a test designed primarily to determine the skill in blending the letters; Test 5, which measures the ability to recognize and give the name of capital letters; Test 6, measuring ability to recognize and name all the capital letters; and Test 7, ability to recognize and name all the small letters. The detailed directions for administering these tests are given in Appendix 2.

Test 4. Blending Letter Sounds. This test consists of a series of nonsense "words" made up of two or more letters with a dash between them, such as *k-o*; *p-i-m*; and *w-o-l-d*. The pupil is asked to look at the letters, think of their sounds, combine the sounds, and then say the word which these sounds might make. In this test the child is urged not to attempt to recognize the "words" as wholes

but to look at the letters one at a time, then think of their sounds; and then blend them and say a single word sound.

As in the case of the Syllabication Test, a child may do relatively poorly on the letter-sound-blending test because he cannot recognize the letters or because he cannot think of the sounds they stand for, or because, having gotten the sounds, he cannot combine or blend them. If he does reasonably well on this test the indication is that he could do reasonably well on these activities. If, on the other hand, he does poorly on the Blending Test, the additional tests are provided as an aid to discovering more exactly where the weakness lies.

Test 5. Giving Letter Sounds. This test consists of the letters of the alphabet in irregular order. The pupil is asked merely to look at the letters, one at a time, and give a sound which the letter stands for. The directions given in Appendix 2 tell which sounds are acceptable. A child may fail on items in this test either because he is so unfamiliar with the letter that he cannot recognize it and hence cannot translate it into its sound, or because, even if he knows the letter, he has not learned to say its equivalent sound. If the score is relatively low on this test he may be given the next two tests as a means of getting further information about his familiarity with the letters.

Test 6. Reading Capital Letters, and Test 7, Reading Small Letters. In these two tests the pupil looks at the letters, one at a time, and gives the name of each. In recording the results the examiner should note carefully which letters are misnamed and pay some attention to the character of the relationship between the letter itself and the letter which was substituted for it.

In interpreting the results of these tests the procedure is similar to that outlined above for the Syllabication Test and the tests of naming syllables and phonograms. The pupil's grade score in Blending the Letter Sounds may be compared with his score in the word-perception untimed procedure, and with the grade score in the Syllabication Test. If the pupil's grade score on the Letter-Blending Test is appreciably higher than his score on the Word Perception Test and the Recognition of Syllables Test, the indication is that he

has achieved in comparison with the average child a more thorough mastery of this type of attack upon unfamiliar words than he has in the approach utilizing syllables and larger phonograms. If the grade score on blending the letters is higher than the score on recognition of syllables, there is a clear indication that the pupil should be guided into making more extensive and effective use of the method of working with unfamiliar words by analyzing them into syllables and larger units.

If, on the other hand, the pupil's grade score in Blending Letter Sounds is the same as his grade score in Word Perception and Syllabication, the indication is that his equipment is a fairly balanced one. If all three are relatively low, the indication is that the pupil is backward in a general, rather than in a specialized, way and that more intensive and effective training on all types of word analysis is desirable.

If the pupil's score on Blending Letter Sounds is relatively low in comparison with his word perception and his score in syllabication, the indication is that he needs some special help in this technique. As pointed out in Chap. 7, this technique is particularly important in dealing with short, especially monosyllabic, words. The ability, however, to utilize the sound of an individual letter is useful at all stages. For example, even in working out the recognition of a long word, such as *position*, which could be divided as *pos-i-tion*, ability to get both long and short sounds of *i* would be helpful.

If the pupil is relatively poor in blending the letter sounds, the grade score in this test should be compared with his grade score in the test of giving the sounds of the individual letters and naming the capital and small letters. Unfamiliarity with some of the letter forms may thereby be detected and corrected. If the trouble is not in recognizing the letters but in giving the sounds, further instruction in giving the various common sounds of the several letters is called for.

Tests of the Auditory Techniques

This series includes four tests: Test 1, Blending Letter Sounds; Test 2, Giving Letters for Sounds; Test 3, Giving Words with Stated Initial Sounds; and Test 4, Giving Words with a Stated Final Sound. The materials for these tests, which are presented orally, are contained in the Pupil's Record Booklet, pages 13 and 14. Detailed directions for giving them are to be found in Appendix 2.

These tests were designed for the purpose of making an inventory of certain techniques upon which success in phonetic work depends. They are even more directly concerned with abilities involved in spelling. Other things being equal, however, the more familiar the child is with the sound characteristics of words and the more skillful he is in identifying and blending the sound units of words, the better he is equipped to utilize the phonetic techniques which have been surveyed in the preceding tests. Marked deficiencies in the auditory techniques may prove to be a handicap to the pupil, especially in the early stages of reading. This would be particularly true of pupils taught by methods which depend upon an analysis of sounds in words and phonetic devices in word recognition.

The tests in this series are to be given only to pupils who have shown special difficulty in learning to recognize words by utilizing the sound components, by breaking words into syllables and combining the syllables, or by translating the visible letters into their sounds and blending and combining them. These tests need not be given to pupils who showed no marked defects in these respects on the tests of visual perception techniques or to those pupils whose difficulties in those tests were adequately diagnosed in the course of giving the tests and observing the pupils' performance. Where the pupil shows difficulty in phonetic abilities and also in learning to spell, it would be advisable to give the auditory technique tests.

Test 1. Blending Letter Sounds. In this test the examiner gives the sound printed in the record form separated by a slight pause, as, for example, *m-e*, *b-a-r-k*, *pl-an-t-ing*. The pupil's task is to listen

to the sounds and then blend them into a unified word sound, *me*, *bark*, *planting*. When a child is using the phonetic method of reading he, of course, must first recognize the letters, then think of the sounds, and then combine them. In this test all he has to do is to combine or blend them.

The grade score from this test may be compared with the grade score for the Syllabication Test and the Blending Letter Sounds Test of the visual perception technique series. This will help the examiner to decide whether difficulties in the latter tests are due to difficulty in recognizing the elements in the printed form and translating them into sounds, or in blending the sounds after they have been secured. If, for example, the pupil's grade score in Blending Letter Sounds is clearly higher, say a grade higher, than his score in the Syllabication or Blending Letter Sounds Test in the visual perception series, the evidence is that the difficulty in the latter tests is not in the process of blending, but is in one or both of the other steps. If, on the other hand, the score in Blending Letter Sounds is also very low, the indication is that some of the trouble at least comes from inability to blend. If the pupil's performance in the blending of the letter sounds is poor the other three tests may be given to reveal the facts more clearly.

Test 2. Giving Letters for Sounds. This is a test of giving the letters which correspond to the sounds made by the examiner. The examiner, for example, sounds the initial *y*, as in *yet*, and asks the pupil to tell what letter corresponds to that sound. This is the reverse of the act called for in the Visual Perception Techniques Test in which he is shown the printed letter and asked to give its sound. The test in giving a letter corresponding to the sound is a measure of the skill directly called for in spelling, in which the pupil is given the total word and tries to convert the sounds into appropriate letters. Inability to give the letters correctly corresponding to letter sounds in itself is obviously suggestive of lack of experience with letters and letter sounds, or inability to profit by such experiences as have been enjoyed because of some difficulty in hearing or sound discrimination. Weakness in this test and those following indicates a general handicap and calls for expert examination of hearing.

Tests of the Auditory Techniques

Test 3. Giving Words Beginning with a Stated Sound. This is a test of one of the abilities sought in the primary grades by means of "ear training." In the program outlined in Chap. 6 were suggestions for various activities designed to help pupils learn to identify and remember the component sounds of words and to recall words beginning with such sounds. This ability is important for profiting by the whole program of phonetic instruction. The pupil who is relatively poor in this test should be recognized.

Test 4. Giving Words with Stated Final Sounds. This test serves the same general purpose as the preceding test except that the common final, or rhyming, rather than the initial, sounds are called for. It is another test which enables the examiner to decide the extent to which a pupil has profited from his preceding experiences with word sounds.

It is important to know the auditory aspects of a pupil's language powers, especially in the case of those pupils who have been given phonetic training in reading or for whom such training is contemplated. If the handicap is due to exceptionally limited experience the chances are good that it may be overcome by effective ear-training programs. If it is due to some special disability in auditory learning or phonetic aptitude, or to a defect in hearing or sound discrimination, the fact should be known. A competent examination by a physician or an ear specialist should be secured if possible and further tests by means of audiometers provided. If defects in hearing or sound discrimination can be eliminated, a careful survey of the reason the pupil has not acquired phonetic skill should be made. If the background experiences were not provided, the ordinary methods may be expected to yield results. If, on the other hand, the pupil has been given a fairly definite and extensive program of ear training, search must be made for the causes of his difficulties in learning. It may be necessary to conduct a series of trial lessons of various types commonly used in ear training to find the points at which misunderstandings or difficulties occur. Considerable individual attention may be required to enable the pupil to progress along the right track and to speed up his progress sufficiently to enable him to catch up with his companions.

Tests of Spelling, Handwriting, and Others

As soon as a pupil begins to write and spell, his experiences in these two activities have a bearing upon the techniques used in reading, and vice versa.

For example, if the pupil is given relatively little instruction in word analysis and word recognition during the first year's experience in reading and is taught a definite technique of analyzing a word in spelling, the latter procedure may be carried over into reading. Similarly, any device taught in reading for the purpose of fostering ability to work out the recognition and pronunciation of words may be carried over into spelling. Familiarity with words and word characteristics is increased by experience in writing. At the same time, sheer necessity of moving through a word very slowly in the initial stages of writing may induce the pupil to react to words piecemeal, and the habit of progressing slowly bit by bit may occasionally transfer to the reading. If the pupil spells and writes words or syllables or phonograms which are readily seen and pronounced, his experiences in writing may greatly increase his ability to divide words into syllables and to recognize words by combining syllables. Indeed, in a normal program the teaching and learning of reading and writing should be carefully coordinated and organized so that each contributes positively as much as possible to the other and introduces the least possible conflict. For these reasons it is often advisable when examining and diagnosing the reading abilities and difficulties of the pupil to inquire into his abilities and techniques in spelling.

Oral Spelling Test. An Oral Spelling Test may be given for diagnostic purposes. For this test two columns of words equivalent to those used in the flash presentation of words test and the untimed word perception test may be used. Full directions for giving these tests are printed in Appendix 2. In general it is the simple procedure of pronouncing a word, using it in a sentence to show its meaning, repeating it, and then asking the pupil to spell it aloud. The oral response is suggested in order to give the examiner the fullest op-

Tests of Spelling, Handwriting, and Others

portunity to observe the methods employed. The misspelled words are to be copied on page 11 of the Pupil's Record Booklet and the pupil's methods may be indicated by checks in the check list printed on the same page. In the check list are the following items:

- _____ Spells letter by letter—no syllabic divisions.
- _____ Spells too hurriedly.
- _____ Spells too slowly.
- _____ Spells phonetically—apparently recalls appearance of word poorly.
- _____ Lacks ability to spell phonetically—gives letters with incorrect sounds.
- _____ Tends to omit parts of word.
- _____ Tends to add letters and syllables.
- _____ Tends to transpose letters and syllables.

The pupil's technique in spelling should be considered in relation to the procedures found in reading. An important part of remedial instruction or further developmental instruction may consist in modification of one or the other or both processes in order to avoid conflict and to secure a more uniform and effective method of approach. For example, the pupil who is spelling words letter by letter with little effort to organize the letters into syllables is probably handicapped both in reading and in spelling. Spelling offers a particularly opportune time for introducing instruction in word analysis, syllabication, and blending units.

The spelling situation is one in which such work seems more natural and involves less interference with the normal activity than does holding up an individual in the course of his reading to make a detailed study of a word. The pupil who has been spelling letter by letter may be taught to use syllabication in spelling, and if the successful transfer is made the result may be a change in his point of view in observing words in reading as well as in spelling. The pupil may have his eyes opened to the existence of syllables in reading and learn to search for them whenever he encounters an unfamiliar word. This new approach may provide him with the skill seriously needed in reading and contribute greatly to his competence in spelling.

Other Tests in Diagnosing Word Recognition

The *Gates Diagnostic Tests* include several examinations of the tendency to make reversal errors and other errors resulting in alterations and confusions in the sequence of parts of words. In diagnosing the mispronunciations in the *Gates Oral Reading Test* an analysis is made of the frequency of the reversal errors and other similar difficulties in the case of contextual materials. In giving the various word pronunciation tests either in quick presentation or in the untimed plan the examiner may note the kinds of errors, including reversal errors, made. A special test of reversal errors made on isolated words is also included. This test is described in Chap. 10 which is devoted entirely to the problem of the development of the systematic left-to-right observation of words. In that chapter methods of determining whether or not a pupil is especially subject to the reversal tendency and devices for correcting this difficulty are outlined.

The *Gates Reading Diagnostic Test* also includes a test of oral vocabulary. This is a test designed to determine the rate and level of word meanings when the word is given orally rather than in printed form as in the case of the reading vocabulary tests in the various group tests described in the early part of this chapter. This test, as suggested in Chap. 3, may be given as a substitute for an individual oral intelligence test when facilities for securing the latter are not available.

References

Manual of Directions for the various Gates reading tests. See list of titles following Chap. 3.

Exercises

1. What is the value of the classification of errors in diagnostic reading tests?
2. A fourth-grade child's grade score on the *Gates Oral Reading Test* is 2.1; his grade score on the untimed Word Pronunciation Test is 3.0.

What information do these scores provide about the nature of his reading difficulty?

3. What errors in oral reading are characteristic of children who use context clues almost exclusively? Of children who use relatively few context clues?
4. Into what four main types are errors on the *Gates Oral Reading Test* divided? Discuss the interpretation of addition errors. Of repetition errors.
5. Which is more serious, a predominance of errors in word beginnings or in word endings? Why?
6. What information about a child's reading ability is derived from his performance on the Flash Presentation Test? What information is obtained by comparing his scores on the Flash Presentation and Un-turned Presentation Tests?
7. A child whose actual grade status is 4.2 has received a grade score of 2.9 on the Syllabication Test.
How serious is his retardation in this skill? Suppose his silent and oral reading grade scores are respectively 3.1 and 3.3. May that change our interpretation of his lack of skill in syllabication?
8. What is the usual distinction made between a syllable and a phonogram?
9. Is credit given for naming letters and then blending them on the Recognition of Phonograms Test? Why? Under what conditions may it be decided that a pupil's difficulty is not primarily due to difficulty with recognizing syllables and phonograms? What further procedure should be followed in such a case?
10. A pupil's grade score in Recognition of Syllables is 3.1; in Recognition of Phonograms, 2.8. In Syllabication it is 2.2. How shall the relationship between these scores be interpreted?
11. What special reading abilities does a well-rounded program of word analysis foster?
12. What are some of the possible reasons for a child's poor performance in Blending Letter Sounds? In Giving Letter Sounds? What difficulties may arise because a child is unable to name the letters?
13. What relationships between test scores indicate the necessity for general training in word analysis? What relationship indicates a special weakness in blending letter sounds? What further tests should be administered to a child showing special weakness in blending?

14. Why are the *Gates Diagnostic Tests* arranged in order of difficulty, the most difficult being presented first?
15. When are the Tests of Auditory Techniques to be used? With what other test scores should the Auditory Technique Scores be compared? Mention several possible reasons for a child's poor performance in the Auditory Techniques Test. In which cases may a change of emphasis and program be effective? What may the Oral Spelling Test contribute to the teacher's understanding of a child's reading difficulties? How may wise teaching of spelling contribute to reading progress?

chapter 9 Improvement of the Reading
Vocabulary and Word
Recognition

The total process of developing a reading vocabulary may, for convenience, be divided into four component phases. The first is the process of deriving meanings from the context. The second is the perceptual reaction to the printed word form. It involves all the elements concerned with quick and accurate recognition of a word, which may be thought of as a special kind of visual object. A third factor comprises a group of techniques of analyzing a printed word which cannot be instantly recognized. This involves several techniques of studying the word form and discovering in it various possible clues to recognition. It may embrace the translation of visual elements into sounds. This, in general, is the technique required to work out independently the recognition and pronunciation of a word by study of its visual and auditory characteristics. The fourth is the unique habit of observing words consistently from

left to right—a habit that one needs for the recognition of practically no other objects except printed words.

In the present chapter the discussion is concerned primarily with the first three processes, namely, those involved in quick recognition of words and in the apprehension of the significant meanings of words, and the activities of word analysis which have as their purpose the achievement of independent recognition of unfamiliar words. The fourth, the problem of developing the left-to-right directional attack upon words, is treated in the next chapter. A fairly full description of the activities involved in using word-form clues to achieve prompt recognition and pronunciation of the words was given in Chap. 7. We shall first give a list of principles and suggestions for ordinary teaching and remedial instruction which grow out of the discussions of the process of word recognition and vocabulary development described in Chap. 7. A few additional principles will be included. After these have been given in brief form we shall take up a series of teaching procedures and methods for critical review. The purpose of this presentation will be to point out the merits and defects of a variety of procedures frequently or occasionally used in schools. Following this review we shall present suggestions for intensifying instruction to correct particular difficulties or to improve inadequate techniques.

✓ *Principles to Observe in Developing Word Meanings*

1. *Teach the pupil to utilize meaning or context clues and word-form clues simultaneously.* In a typical situation, as in reading a selection, clues from the appearance of the word and from the meaningful context are at once available and prompt and accurate recognition of the word and its meaning is best ensured by utilizing both types of clues. The common fault is that of using one approach, such as the study of the word form in isolation from the others.
2. *Introduce new words in context.* If pupils are to learn to utilize word-form and meaning clues simultaneously they should be given abundant practice in solving problems by this combined

Principles to Observe in Developing Word Meanings

means. When a word is first introduced it should be clothed in as helpful context as possible so that meaningful clues can be combined with observation of the word as a means of figuring out what it is. In this way the pupil's first contact with the new word enriches its meaning and makes the process of word recognition easier.

3. *Review the word promptly in varied context.* Most words have several shades of meaning and in some cases quite different meanings. The introductory setting, therefore, can give but a part or but one of the meanings. To enlarge and enrich the reading vocabulary each word should be reviewed promptly in other contexts in which different shades or important meanings are embodied. Thus the horizon of the pupil's understanding of the word is enlarged as he simultaneously increases his skill in recognizing the word form.
4. *Set up exercises which focus the pupil's mind sharply on the word's meaning.* Although the most valuable way of developing a word's meaning (apart from concrete experiences related to the word) is that of comprehending the word in varied context in printed or spoken form, something is gained by directing the pupil's attention specifically to the meanings and implications of a particular word. There is always a likelihood when words are encountered only in spoken or printed text that the pupil will not sharply distinguish the meaning of a particular word from the meaning of the text in which it is contained. Meanings can be brought out more sharply and clearly and their precise nature more exactly defined by setting up realistic activities which center attention on the meaning of the word per se. For example, after the word has been introduced in context and reviewed, its meaning may be discussed by itself and the different shades brought to the fore in some type of exercise. Various problems involving discrimination among the several meanings or shades of meaning of words may be introduced.
5. *Introduce various follow-up activities in which the meanings of the word are applied to concrete, practical situations.* If, for

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example, the word is first introduced in a reading selection and reviewed and discussed in the classroom reading period, it should later be brought up in connection with some concrete or practical situation. The pupil may use the word in connection with demonstrating the use of an apparatus or employ it in the title of a drawing, or find it in the index of a catalogue, use it in a letter, or otherwise try to relate it to concrete experience. In this the meaning of the word is not dependent entirely upon linguistic activities but is enlarged and refined by associating it with concrete experience.

6. *Encourage the pupil's effort to derive word meanings from context, even in cases in which it results in error.* In reading a selection about a farm a pupil may, by using context clues, know that the unfamiliar word is the name of a farm animal. He may say *cattle* when the word is really *cows*. The fault here is not in a failure to use context clues but a weakness in utilizing the word-form clues. Care should be exercised lest in criticizing his mistake the pupil be driven to an undesirable type of caution in utilizing context clues. It is, practically speaking, impossible to make too much use of context clues. It is, of course, possible to make too little use of word-form clues. The course is improvement in the techniques of observing words, not a weakening of the device of using meaningful clues.

Principles to Observe in Developing Word-Form Perception

The series of principles and suggestions just given applies primarily to the development of word meanings and the cultivation of the art of utilizing context clues simultaneously with word-form clues. Following is a series of principles relating chiefly to the development of skill in the recognition of the word form itself.

1. *Induce the pupil to react actively and vigorously to the word form.* Many failures in reading result from the pupil's habit of looking at the word in a careless, passive way. Just as some adults do not remember names and faces well because they barely attend to them when they are introduced, so children may look at words

so superficially and passively that the words make no impression on them. The pupil must learn that he must move out actively and make a definite assault upon the word. He must center his attention on it, look hard and thoroughly, and adopt an active, searching mode of observation. The pupil must learn to make an active and vigorous effort to discover the telltale features of each new word form. In the initial stages of learning to read it is better to have an active, attentive response to a word even if this involves inappropriate features than a passive, lackadaisical observation. Where there is action there is a possibility of maneuvering it into the right channels.

2. *Provide guidance in discovering the most significant features of the printed word.* In the initial stages, it is important to help the pupil locate the features of words which are most helpful in word recognition. It is hard for an adult to realize how complicated and puzzling an object a printed word is. Often a bit of timely guidance not only saves the pupil much time in mastering individual words but gradually leads him into the use of the most appropriate techniques. Even for much more mature pupils, especially those in need of remedial work, similar direct guidance by pointing out, covering and uncovering parts of the word, and so on, is desirable.
3. *Encourage the pupil to conduct his own studies of each new word.* If the teacher can succeed in getting the pupil interested in making a study of the form and sounds of each new word she will have accomplished one of the most important steps in developing skill in word recognition. The pupil who is content merely to work out a word when he needs it in reading by hook or by crook, will not progress so rapidly as a child who finds it fun to study over the word as opportunities permit. Once a pupil has learned to enjoy puzzling words out, noting their familiar elements, discovering their distinctive parts, and thinking of other words that are similar, the battle for independent word recognition is largely won.
4. *Display the word in as many different forms as needed.* In the early stages a child may learn to recognize *cow* in large type and

fail to recognize it in small. If first introduced with a lower-case initial letter, it may not be recognized when it first appears with a capital letter. Even after some months, learning to recognize the printed word *cow* may not, in itself, enable the pupil to recognize the same word in manuscript or, much less probably in script. The teacher must provide for the presentation of each basal word in a sufficient number of different forms to ensure its ready recognition in the materials actually used in the program.

5. *Avoid introducing too many words in a single lesson.* It is advisable to give the recognition of each word abundant practice when it is first introduced. If too many words are introduced at once the pupil may become confused and fail to get any of them clearly in mind.
6. *Help the pupil to utilize a variety of clues.* As pointed out in Chap. 7, many different clues are useful in word study and word recognition and the program should develop skill in taking advantage of all of them. The more common types of clues were outlined in Chap. 7. These clues may be grouped into two types:
 - (a) Visual clues.
 - (1) The total shape or configuration of the word. Thus, *on* and *or* are similar, but *on* is very different from *by* and from *automobile*.
 - (2) Striking visual features, such as the tall beginning part and the flat ending part in *this*; the *oo* in *foot*.
 - (3) The absolutely essential distinguishing features of very similar words, as in the case of *house*, *horse*; *won*, *win*; *war*, *was*.
 - (4) Common visual elements in words not necessarily representing identical sounds, as in the case of *war* and *ware*, *food* and *look*.
 - (b) Phonetic elements; that is, elements alike both as seen and sounded.
 - (1) Common letter sounds, as the initial *b* in *boy*, *baby*, *bear*, *bee*.

Principles to Observe in Developing Word-Form Perception

- (2) Phonograms of two or more letters, such as *th* in *this*, *that*, *they*, or the *ee* in *tree*, *free*, or the *tle*, in *bottle*, *rattle*.
 - (3) Syllables, as in *ba—by*, *en—ter*.
 - (4) Little words in bigger words or the parts of compound words, as in the case of *swim* in *swimming*, *bit* in *rabbit*, *in* and *to* in *into*, *news* and *paper* in *newspaper*.
7. *Help the pupils to see and use the word parts which are most helpful for word recognition and to learn to eliminate those that are misleading.* The choice for an individual pupil depends upon his stage of development but in general it is better for a pupil to see *thing* as composed of *th* and *ing* than of *thi* and *ng*; or *t* and *hin* and *g*, because the first two elements are easier to see and sound. In searching for little words in big words special care must be exercised. For example, if the child is encouraged to locate the *is* or *list* or *ten* as separate words in *listen* he will be given pronunciations of the parts which are not found in the particular word. To see *in* and *to* in *into* is obviously helpful because the pronunciation of the little words is retained in the larger one. When a pupil discovers inappropriate little words, ask him or help him to find more helpful words or syllables.
8. *Encourage pupils to try different analyses of words instead of repeating the same one.* The method of some children is that of looking over the word, dividing it into certain parts, and then, either with or without sounding the parts, trying to get the word as a whole. If the word is not suggested they are likely to repeat the same analysis. They must be assisted in learning to try and try again to locate more helpful parts in the word or to supply other sounds for the parts that are noted, or both. For example, if the child is trying to work out the word *heard*, he may begin by dividing it into *he-ar-d*, pronouncing *he* as the common word and giving the long *a* to the *a*. These sounds may be too remote from those employed in the actual word to suggest it. Instead of stubbornly repeating the process, the pupil should survey the word again and try to find more helpful clues or sounds. He may, for example, on a second survey, note the word *hear-d* and pro-

nounce it *hear* with the long *e* sound. In this case, although the sound is different the meaning is so similar that it may suggest the word *heard*. If it does not, the pupil should look again. Perhaps this time he divides it *h-ear-d*. If this does not suggest the word, the pupil should try something else. He may finally get it by dividing it *be-ard*, provided he gives the short sound to the second part. At any rate, it is important for the child to try this and other possibilities since, in general, by varying attack he is most likely eventually to hit upon one sufficiently close to the real word to suggest it.

9. *Compare each new word with others.* One of the most effective means of developing skill in word recognition is to establish the practice of comparing each new word with some or many others previously introduced. A major difficulty in word recognition is mistaking one word for another which resembles it in some way. A most important way to remove this difficulty is to compare each new word, shortly after it is introduced, with the other words with which it is most likely to be confused. In this comparison the similar or identical parts and the different or distinctive features should be pointed out. This activity not only assists the pupil to avoid confusing these similar words, but provides a most important means of fixing attention upon the unique and telltale features of each word. It is a primary means, moreover, of developing word analysis and leading to the recognition of component word parts.

It is highly desirable, when possible, for the teacher, at least in the primary grades, to have the results of a study of each new word in comparison with all the words previously introduced. In this way she will be able to see the similarities of each new word with all those regarded as part of the pupil's basal vocabulary, and will be able to pick out for comparison those most likely to be confused with the new word or those most likely to yield the most significant clues by comparison with the new word. Thus, for example, the teacher would know at once, when *house* is introduced, that the word *horse*, which it so closely resembles, has been already studied. The two words should be carefully compared. When the new word *them* is

introduced she should know that the similar phonogram *th* appears in *these*, *there*, and *the*, among words previously introduced. When such facts are known, the new word can be made much more intelligible and easily handled by tying it up with parts already encountered in old words and by sharpening discrimination of the new word and other very similar ones.

Most words may be profitably compared with more than one other word. For example, the word *play* may be compared first with *plant*, *plow*, *place*, to bring out the initial phonogram. It may be compared with *plays*, *played*, and *playing*, to show the relationship with these forms. It may be contrasted with *clay* and *pray*, both of which are very similar, in order to lead the pupil to discover ways of perceiving each of these words in such a way as to avoid confusing them with each other. *Play* may also be shown in comparison with *play-mate* and *plaything*, to show the use of the word in a compound.

Comparison of each word with others containing common and interesting elements is one of the basal techniques in the modern word-recognition program. It acquaints the pupil with the fact that words are made up of various combinations of common parts. It enables him gradually to develop familiarity with these common elements. Gradually he learns to recognize the elements as quickly and accurately as he recognizes the most familiar words and new, even complex, combinations of them may thereby be worked out. These experiences are fundamental to the development of insight and shrewdness in word analysis. They also give the pupil definite practice in distinguishing each word from the others with which it is otherwise very likely to be confused.

10. *All word comparisons and word-analysis activities should be carried on with words which have been previously encountered.* For example, in conducting the comparisons mentioned in (9) above, the teacher should not bring in words with which the pupils are as yet not familiar. The purpose of the exercise is to help the child achieve familiarity with the word as a whole and its organization and structure by reviewing it in comparison with words and word elements already well known. The

learning experience, in other words, should consist of refining and improving the perception and analysis of words previously encountered by reviewing them frequently in comparison with other familiar words. If, when introducing a new word, the teacher selects unfamiliar words which are very similar or which contain similar parts, she multiplies the difficulties and adds to whatever uncertainty or confusion the pupil may experience in dealing with the new word. She should use old words to make the analysis as easy and as significant as possible.

11. *Words, especially difficult ones, should be reviewed from time to time in comparison with new words.* In section 9 above it was suggested that at the time a word is introduced it should be reviewed by comparison with similar words previously studied. This should not be the end of the study of that particular new word. If, for example, it were introduced on December 1, other words may appear by February 1 with which it can be most profitably compared. It should, therefore, be brought forth and compared with other words from time to time, especially with words with which the comparison would be most fruitful.

It should be noted, however, that the policy of considering each word in comparison with all those which have gone before would automatically review the older words from time to time in the most important setting. Review recomparison, and restudy of words, are necessary in order to secure the gradual development of efficiency and insight in dealing with words.

12. *Study of word sounds should precede and accompany study of the visible printed or spoken words.* This principle was emphasized in Chap. 3 and suggestions for conducting ear training during the prereading period were given in Chap. 6. The ear-training program should be kept up for several years. In most programs it is carried on to higher and higher levels of distinguishing rhyming sounds, differences in pronunciation, becoming acquainted with the rhythmic and other characteristics of words, well up into the intermediate grades. Skill in breaking a word up into sounds, in hearing and sounding clearly

the syllables, the letters, and other component auditory features, is a necessary background for developing skill in the phonetic phases of working out the recognition and pronunciation of unfamiliar words.

13. *In attacking an unfamiliar word the visual analysis of the word form must precede the sound of the word parts.* Although training in distinguishing the word sounds precedes the study of visual word forms in the school program, the reverse order is followed when a pupil encounters a word he cannot recognize at a glance. The first problem is that of studying the word visually and of locating in it the letters or combinations of letters which must be discovered before the parts can be translated into sound. Although this is obvious, it is repeated for the reason that in dealing with disabilities a common major difficulty is inability to make the visual analysis rather than inability to translate useful word elements, once they are discovered, into sound.
14. *Word elements should be introduced by leading the pupils to discover them in words rather than by presenting them in isolation.* To find the *st*, the *or*, and the *y*, of *story*, is a very different thing from merely recognizing *st* and *or* and *y* when each of these is presented by itself in some type of formal exercise. As stated in section 13 above, a major difficulty is that of locating these familiar elements in the word rather than of seeing only one letter at a time or some less helpful grouping.
15. *Rules and technical terms should be introduced only when it is certain that they really help.* Most of the rules concerning the sounds of words take on a helpful meaning only after the pupil has had a good deal of experience. Very few rules are of value at any stage. Care should be taken in introducing technical terms lest they merely add something more to learn without being more helpful than a familiar word or phrase. For example, long and short vowel sounds of words can be introduced long before the terms "vowel" and "consonant" would be helpful. Syllables might better be called "parts" in the first three grades, at least.

16. *Provide frequent reviews and periodic diagnoses.* Periodic reviews and diagnostic tests, either formal or informal, of the techniques of word-recognition and word-analysis skills should be provided so that pupils will not become too confused because of an unduly large accumulation of unknown or poorly known words, and so that the pupil will not be permitted to practice inappropriate techniques long enough to permit them to become fixed habits. Reviews are essential as a means to determine whether the pupil is continuing to make progress and, if not, to discover the reasons for his failure.
17. *The total program should be organized to provide the skills most needed at a given time and also to secure gradual progress toward higher levels in ability.* There is always a danger that a child may acquire certain limited techniques and continue to function with them alone. He may actually overlearn and tend to remain at an immature level. The whole program must be worked out in a proper developmental sequence. For example, in the early stages initial letter sounds and phonograms should be introduced and emphasized in order to encourage children to look at the beginning of words rather than the middle or end. In the early stages children are encouraged to tackle many words, such as *boy*, *bat*, *win*, by blending the sounds of the individual letters. This technique is useful in dealing with many shorter words and in getting parts of longer words. Such letters sometimes occur in combination with syllables and phonograms in polysyllabic words. This habit must be given a healthy development but children must gradually shift from seeing these words as made up of such minute parts to seeing them as total units. Although children should be encouraged to note syllables and little words in big words from the beginning, they must learn to make increasing use of the device of analyzing words into the larger parts as they gain experience. By the time they reach the third grade, for example, skill in dividing words into syllables is absolutely essential. A much higher level and a much greater disposition to use syllabication must be established for use in later grades. It is, therefore, always neces-

Some Characteristics of Teaching Methods and Materials

sary not only to meet the demands of the moment but to provide for continuous development in skill and versatility in attacking unfamiliar words.

To repeat the principle stated in section 3 above, one of the major objectives of word-study programs is that of inducing the pupil to study and analyze words by himself as opportunities permit, in the spirit of interesting recreation. This work can be made good fun. Properly managed, the activity can be made to embody much of the zest of popular games involving use of one's wits to discover and guess the solution to puzzles. The more this active spirit pervades the activity, the less extensive it needs to be and the more fruitful the results. When the word-study program is fused with the spirit of recreation it is much more likely to maintain continuous advance to higher levels than when it is a formal, colorless, classroom drill.

Some Characteristics of Teaching Methods and Materials

A variety of types of lessons and activities may be set up in harmony with the principles outlined in the preceding sections. A word should be said about characteristics of the techniques and the materials before suggestive lessons are outlined.

Three types of teaching techniques may be provided. All these types may be employed in a single lesson or a lesson may be largely confined to one or two of them. The three types of techniques are as follows:

1. *Demonstration, detailed instruction, showing how.* The teacher typically employs this technique in order to make it as clear as possible to the pupils what she wishes them to learn to do. It includes an effort to show the pupils as clearly and as fully as possible the objectives which their learning should pursue. For example, suppose that the word *office* were introduced during the day for the first time. It should first be read in context and taken up and noted in connection with the discussion of the selection. Later it might be singled out for definite instruction and demonstration. If the teacher explained what the word *office* means and

contrasted it with several other types of rooms, she would be using the demonstration or full instruction technique in bringing out into the clear the meaning of the word. She might follow this up by showing the pupils how she would proceed to study the visual and auditory characteristics of the word. She might proceed more or less as follows:

"Suppose I have to read the sentence—*Father goes to his office every day*, but I do not know the word *office*. This is the way I should go about trying to read it.

"First I should look at this word, beginning here at the beginning (the left), to see if I can find any shorter words I already know. This is rather a puzzling word because there are several little words in it, depending on the parts it is divided into. I might divide it into *of* and *fice* or into *off* and *ice* (demonstrate by pointing to the points of division). If I divide it into *of* (pronouncing the word) and *f-ice*, and then pronounce them together—*of-f-ice*, they don't sound exactly like any word that I know, so I'll try again. Now I'll divide the word into two parts this way—*off-ice*. When I say the word in these two parts, it seems somewhat more like a real word, but not quite yet. So I shall try the short sound of *i* (pronounces *office* correctly) and then see if the word I have read fits well into its sentence. It does, doesn't it? The word, *office*, gives the right meaning to the sentence. The sense of the whole sentence will help you with the sound of the word. When you meet a word you don't know, try to get the meaning of the whole sentence before you sound the word parts. This will help you to get the right word sounds."

2. *Guidance and assistance.* Under this technique the teacher does not demonstrate so fully or explain so much. In general, she would ask the pupils to make as great a contribution as they could and she would work with them, throwing out hints and suggestions, correcting mistakes, as the situation requires. For example, instead of deliberately telling the pupils the meaning of *office*, she might ask the pupils to contribute their ideas. She might ask them to distinguish an office from other rooms. She would approve the correct responses and correct misleading

suggestions. When the meanings finally have fully emerged, much of the total contribution may have been from the pupils under the teacher's tutelage.

Again, in analyzing the word form, she might ask a child to show how he would study the word and to indicate the parts that he had found. If the pupil started off by dividing the word into *of* and *fice*, with the long *i* and was unable to make any further progress, the teacher might throw out a suggestion that he look it over again and see if he could find any other familiar words. If the pupil tended to restrict himself to the long sound of *i* in *ice*, she might ask one to think of the short *i* and try the word out with it.

3. *Unguided practice by the pupils.* Here the teacher's technique simply consists in providing the material, the situation, and the incentives needed to get the pupils to attempt to work out the meaning of the word or the characteristics of the word form by themselves. For example, instead of conducting a lesson of the type mentioned above, the teacher may merely ask the pupils to spend a little time getting as clear an idea as they can of the meaning of the word *office* and to study the word form to see what features useful in recognizing the word they can discover.

It is clear, of course, that the first technique represents one extreme, the one in which the teacher does the fullest amount of teaching and demonstration, and the third represents the other, in which she gives the minimum amount. The second technique may vary anywhere between these two extremes. Generally speaking, more demonstration and instruction are required when the pupils are immature than when they are more mature. More demonstration and instruction are needed in introducing a new feature or process or a particularly difficult word, and the pupils can handle the problem more fully by themselves if they have already achieved considerable familiarity with it, or when it represents a relatively easy example.

Word-enrichment and word-analysis activities may be carried on with two general classes of materials, as follows:

1. *Any word, phrase, sentence, or paragraph.* A word-study lesson may be conducted as the word is encountered in any situation,

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by itself, in a phrase or sentence, or any paragraph that is read for the purpose. An example of this type is given shortly.

2. *Especially devised materials, exercises, or devices.* We now have in common use many varieties of materials deliberately set up to make them particularly useful for some particular purpose. For example, if the teacher should write on the board the sentence

foot
"Charlie can stand for a long time on one feet"
food

she would have produced a special exercise designed to be particularly helpful in bringing out the meaning of the word and the visual and auditory similarities and difficulties of these three words. In a later section in this chapter, examples of different types of exercises and devices are given.

An Illustrative Lesson in Vocabulary Development

The following is an illustration of an exercise in which a passage encountered in reading materials in the basal program is used. In a selection in the basal materials appears the following paragraph:

Jane is a small girl, but she can run very fast. Her brother, Billy, is bigger and can run faster, and her biggest brother, Tom, can run fastest of all.

Following is a representative procedure for dealing with this paragraph.

1. *Reading the passage to get the thought.* The first step is *normal* reading and discussion of the material. This would be carried out whether the above paragraph appeared by itself or as part of a longer selection. Reading and discussion of the material gives practice in using context clues and word-form and sound clues simultaneously to work out the recognition, pronunciation, and meaning of all the words in the passage. If the passage contains certain new words, that is, words introduced to the group for the first time, the advantage of presenting them first in con-

An Illustrative Lesson in Vocabulary Development

nected material instead of in isolated form is that it makes it easier to recognize the words.

After the paragraph has been read, the words recognized and their meaning known, at least in the form employed in the passage, the next step, which becomes in a sense a part of review activities, is taken.

2. *Further analysis of the meanings and word-form characteristics of the words.* Analysis of either the meanings or the word-form characteristics or both may now be carried on. For example, the teacher might ask the pupils to tell the difference between *bigger* and *faster* and the difference between *bigger* and *biggest* and *faster* and *fastest*. There might be some exercises in which they use these different words in sentences. The particular passage above appears in a basal program for the third grade. At this stage some preliminary notion of the difference between the use of the comparative and superlative forms might be introduced although probably these terms would not be mentioned.

When the word-form study is undertaken, the task would be primarily to find in the passage words which, because of similarity or striking character, special difficulty or familiar elements, are worthy of comparison and study. If new words have been introduced in this passage, they would doubtless be given special attention. As an illustration let us consider some of the things that might be done in a third-grade class with relatively little explanation and demonstration by the teacher. In this case the teacher would work along with the class and throw out suggestions as she thought they would be especially helpful. In looking over such a passage, for the purpose of noting words especially worthy of study, it would be expected that different children would select different words and perhaps select the same words for quite different reasons. In the third grade some or all of the possible word characteristics might be noted by one child or another.

- (a) *Similarity to the appearance or configuration.* The children might look over the words to see if they can find some that are quite markedly alike or quite strikingly different in general configuration. One child might see

the similarity between *can* and *run*, which happen to appear next to each other in the first line. Another child might suggest that there is a general similarity between *faster* and *fastest*. Still another child might point out that it ought to be easy to tell the difference between *fast* and *faster* because the former is shorter and does not have any *er*. Many other similarities and differences might be noted. As these comparisons are suggested the teacher may at any time lead the pupils into a study of the words and give suggestions concerning ways of distinguishing them. For example, she may point out that while *can* and *run* are the same length and have the same ending and while the first letters are much alike, there is a real difference between the *c* and the *r* and also a difference between the *u* and the *a*. She may tell them that they will have to look at these words quite sharply to tell the difference.

- (b) *Similar parts, such as initial, medial, or final letters, phonograms, syllables.* In noting details many different similarities and differences may be reported. Among them are likely to be the following: *Similar beginnings:* Some of the children may report that *brother*, *bigger*, and *biggest*, also *fast*, *faster*, and *fastest*, also *small* and *see*, begin with the same letter. Others will report that the word *fast* appears in *fast*, *faster*, and *fastest*. *Same endings:* The fact that *bigger*, *faster*, and *brother* end in *er* and *biggest* and *fastest* in *est*, may be noted. In any such instance, a teacher would be alert to suggest something overlooked. For example, if the pupils reported that *bigger* and *faster* end in *er* but failed to notice *brother*, the teacher might add it or ask the pupils to look at it and see if they find any basis of similarity. *Small* and *all* may both be noted.

The pupils may examine the words to see what familiar letter combinations, phonograms, or syllables appear. What they will note, of course, will depend greatly upon the particular elements that have been previously "analyzed out" but in any typical class

An Illustrative Lesson in Vocabulary Development

the pupils' analytic achievements will be very different, since many pupils will analyze out elements not formally taught in the classroom. Among the possibilities in this paragraph are such elements as the *sh* in *she*. The pupils among them may recall other words previously introduced or beginning with *sh*, such as *show*, *shme*, *shore*. The *un* in *run* may be noted and other words containing this phonogram suggested. The *ly* in *Billy* may be identified, or perhaps just the final *y*, and other words containing the same elements noted. The pupils may uncover a number of small words comprising a part of the longer words in the passage. For example, the *all* in *small* should be noted and compared with *all* appearing as the last word in the paragraph. The *an* in *can*, the *big* in *bigger* and *biggest*, the *fast* in *faster* and *fastest* should be brought out. The *other* in *brother* might possibly be noted.

Some children may suggest words which resemble those in the passage being studied. For example, some child may note that the word *run* is very similar to *sun* and the two might be written on the board and compared. Similarly, someone might suggest that the word *can* is very similar to *ran*.

In such a lesson a teacher may have arranged beforehand to give special attention to certain words or to certain generalizations relating to words. As a matter of fact, in the teacher's Manual, which accompanies the basal program from which the above paragraph was chosen, appears the following:

"Look at the words *bigger* and *faster*. Here are some other words that end in the same way. Can you read them?" Write *bigger*, *longer*, *blacker*, *wider*, and have them read and used in sentences.

"Can you read these sentences?"

The city is quietest late at night.

Jean is the oldest of three children.

It takes many days to cross the widest oceans.

"Look at *biggest* and *fastest* in the paragraph we read at first. Which word in the first sentence I have just written ends in the same way as *biggest*?" Continue the same procedure with the other two sentences. Then ask the children to read the words *strongest*, *queerest*, *smallest*.

Another Illustrative Lesson

Following is another illustration in which more explanation and instruction are offered by the teacher and somewhat less is left to the pupil's own initiative. This illustration is taken from one of the earliest lessons in the second-grade program.

The teacher writes on the board the following sentences:

"Well, well," said Brownie, "Cook did not see me after all."

Brownies keep their secrets very well.

In the country people sometimes get water from a well.

"How do you do?" asked Jean.

"Very well, thank you," said Jupie.

In this exercise the teacher asks the children to read each sentence silently and then asks someone to read it aloud. Certain new words are contained in the selection and these are read by the teacher if none of the children can figure them out. After the five sentences have been read and discussed slightly, the teacher proceeds as follows:

"If I change the first sentence to read, 'I am surprised,' said Brownie, 'Cook did not see me after all,' would the meaning of the sentence be very different? When we say, 'Well, well,' we are usually surprised and pleased. If I say to you, 'Well, well, you have done a fine job,' you know that I am pleased and perhaps a little surprised. Now look at the next sentence. Does *well* mean the same in this sentence as it does in the first one? Look at the third sentence. Does *well* mean the same as in the first sentence? Does it mean the same as it does in the second sentence? Now look at the last sentence. Does *well* mean the same in this sentence as it does in the first one? In the second one? In the third one? We see that even if the word *well* does really mean several different things we can tell what it means every time if we get the meaning of the rest of the sentence."

"Now let us study some of the new words." The teacher then presents the new word *well* beside the word *will*. She asks the pupils to compare the two, tell how they are alike, how they are different, and how children are going later to tell one from the other. A note

Arrangement of Words in Word Study Exercises

should be made that these two words begin with the same letter and end with the same pair of letters.

It is suggested next that the teacher present the new word *well* along with the familiar word *tell*, and that these two words be compared. In this case the children note that you can only tell these two words apart by observing the initial letter. The fact that they both contain *ell* is noted and perhaps other words containing *ell*, such as *sell*, *bell*, *fell*, are brought in for comparison.

The above comparisons were definitely planned as necessary or important at this stage. After they have been completed, the teacher might ask the pupils to go ahead on their own and study out other characteristics of these words by themselves.

From these illustrations it may be seen that any passage offers opportunity for effective comparison and study, both of the visual and auditory characteristics and of the meanings of words. The extent and character of the analysis in either case will vary with the ability of the group. In the third grade, for example, many more phonograms should be noted and finer distinctions made than in earlier grades. Many types of approaches and devices may be employed in such informal work after the new words have been read in context.

We shall discuss some of these possibilities after considering some of the characteristics of materials especially, sometimes even artificially, arranged for the purpose of fostering word enrichment and word analysis.

Arrangement of Words in Word Study Exercises

The basic purpose of mechanical arrangement of words is merely to place two or more words in such a way as to give emphasis to the common elements and distinctive features, and to require a desirable degree of accuracy in the perception of word forms in order to solve some types of exercises correctly. There are two general types of arrangements which fulfill these requirements. Other arrangements may be made up which combine the elements of these two types.

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In one type, two or more words are arranged in a vertical column. The following are examples:

back	cap	had	bell	ball
bat	cat	mad	tell	bell
bag	can	radish	sell	sell
bad	catch	sad	fell	tall

In the first column, the *ba* element is common; in the second the *ca*, in the third the *ad*, in the fourth the *ell*, in the fifth, the *ll*. Each series is mechanically arranged to throw into relief certain similarities and differences among the words. When the pupils are required to select from such a column the one word needed to solve some practical problem, they are forced to discriminate sharply and are assisted in identifying the common elements.

The second type of arrangement comprises a horizontal row of words which are alike in certain respects and unlike in others. For example:

bad, back, bat, bag
there, these, them, they
run, sun, fun, gun

This type of arrangement is usually a little more difficult than the preceding one for the reason that the similarities and differences are not so easily compared. For certain teaching purposes, especially in the beginning stages or in work with older pupils deficient in these skills, the vertical arrangement is especially helpful. Practice in choice among similar words arranged in rows is quite necessary, however, since the pupil must learn in the course of time to distinguish such similar words when they are viewed one after another on the printed line in ordinary material.

Various combinations of the two arrangements may be made in connection with several types of exercises. For example, a block of words such as

bell	tell	ball
sell	fell	fall

Exercises for Enriching and Refining Word Meanings

includes the elements of both arrangements. Other illustrations of the combination of both types will be found among the exercises to be given shortly.


Exercises for Enriching and Refining Word Meanings

In Chaps. 3, 6 and 7 the various ways in which the meanings of words may be enriched were described. Word meanings are developed by associating them with concrete experiences which bring out the significance of the term or by relating them to certain events portrayed by still pictures, motion pictures, graphs, mechanical devices, and other means of representing, more or less fully, actual situations and activities, or by reading or talking to pupils and engaging them in conversations in the classroom or on excursions or in other situations or by reading the words in contexts which convey their significance. It was also pointed out in these sections that the process of enriching and refining the meanings of words can be fostered by providing the pupil with plenty of opportunities to guess the word from context and by organizing problems or discussions either in oral or written form which require the pupil to center his attention upon the word and its meaning.

It is the purpose of this section to give a few illustrations of devices which may be printed in practice materials and workbooks or placed on the bulletin board and blackboard for the pupils to read. In either case the supplementary explanatory material in whole or in part may be given orally by the teacher or actually printed on paper or written on the blackboard. The following is by no means an exhaustive list, but it illustrates some of the useful devices. It should be noted that many of the exercises are designed to enrich and extend the meaning of the word and to increase the pupil's skill in perceiving and analyzing the word form simultaneously.

Below are three examples of a "dictionary-card" type of exercise which has proved to be very useful in the first two grades and, in modified form, in later grades.

The purpose of the first exercise is to introduce a new word, *house*. In the case of this exercise, the picture of a house is provided and

 <p>House house</p>	<p>This is a house.</p> <p>This house is on a farm.</p> <p>This is a good farm house.</p>
<p>Eat eat</p>	<p>Cake is good to eat.</p> <p>Jim likes to eat cake.</p> <p>Judy likes to eat cake.</p> <p>And Tags likes to eat cake, too.</p>
<p>Something something</p>	<p>"Here, Tags!" said Judy</p> <p>"Here is something to eat.</p> <p>It is something good.</p> <p>It is good cake."</p>

under it the word beginning with a capital and with a lower-case letter. In the second exercise is introduced the new word *eat*. In this case no picture is included. The third exercise introduces the new word *something*. In each of these cases all the words in the passage or definition are old words except the one new word being introduced. The pupil's task is to try to work out the recognition, pronunciation, and meaning of the new word by himself. In doing so he will use the meaning of the passages and the picture, if there is one, as effectively as he can, and at the same time employ any visual or phonetic clues which he can locate in the printed word form. If he is unsuccessful the teacher assists him promptly, and in doing so demonstrates to him what she thinks would be the best technique of figuring out the word from the meaning and from the word-

Exercises for Enriching and Refining Word Meanings

form clues. In a typical lesson the pupil goes ahead and reads other materials in which the new words are used in different context and often with different shades of meaning.

After the pupil has read the word in additional materials an individual or class discussion may be conducted during which the teacher provides questions or exercises to reinforce or extend and refine the meaning of the word and to assist the pupil in discovering the most important characteristics of the word form itself. At this time or later, the "dictionary-card" introductory exercises are cut out and pasted in a scrapbook in alphabetical arrangement to make a dictionary. As new words are added through the year, they are pasted in the dictionary. Thus at any time the pupil has a dictionary including all the basal words which have been introduced up to the time.

Following are some other types of exercises used in the first grade to find meanings. The one shown below is a riddle in which the solution consists in selecting the one of several possible words which conveys the right meaning. In some instances the words offered as choices may be compared with each other for the purposes of refining word recognition and word analysis.

What Is It?

It is fun.

It makes boys happy.

It makes girls happy.

Mothers make surprises for it.

What is it?

got

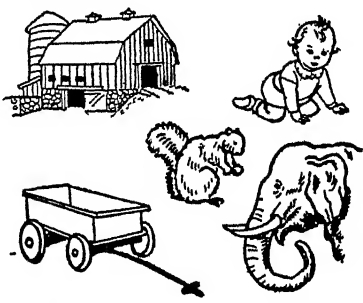
birthday

box

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The exercise below illustrates the use of actual definitions in the first grade. In this case the pupil's task is to match the sentence with the picture which gives its meaning.

1. He cried for his mother.
2. It runs on wheels.
3. It is bigger than a cow.
4. The horse lives in it.
5. It has a home in a tree.



The exercise below under the heading "Words Are Fun" is a sample of a device used in the first grade to enrich the meaning of words and to attempt to generalize the significance of the comparative form in *er* and the superlative in *est*.

Words Are Fun

It is fun to make new words out of words that you know.

You know the word, old. Judy is not old.

Put er on old and you have older. Mother is older than Judy.

Put est on old and you have oldest. Grandmother is oldest of all.

Draw a line from the words to the right pictures.

The baby is not old.

One is older than the baby.

One is the oldest of all.



Exercises for Enriching and Refining Word Meanings

Following are examples of exercises used in Grade 2. The exercise under the heading "Put the right name in each place," is similar to the riddle used in the preceding grade except that it is more complex and difficult.

Put the right name in each place.

1.

I worked and worked, but I could make no money.

One night I cut some leather. I was going to make a pair of shoes the next day.

The next morning the shoes were made for me. A man bought the shoes. At last I had some money.





I am the_____.

The exercise below is an example of introductory work with synonyms; at this stage the term "synonyms" is not used.

Read each word and draw a line to another one like it.

house_____	home	hard	cold
ground	land	dark	light
lights	beam	minutes	o'clock
far	near	small	little
first	last	ten	five
good	fine	does	buzz

The exercise below involves the association of a printed word with the pictorial representation of the meaning.

<p>Can you put the right words under the pictures? The words are <u>butterfly</u>, <u>caterpillar</u>, <u>cocoon</u>, and <u>ant</u></p>			
			

Essentially similar tasks may be introduced in a variety of exercises. For example, the pictures may be arranged in one column and the words in another and lines drawn from the one to the other. Sentences containing the words may be substituted for isolated words. The words may be presented and the pupil may draw an illustration.

The following second-grade exercise is a sample of a device used to develop the different meanings of a single word form and to teach the pupils that there are many instances of this type. The teacher may write on the board the two sentences:

Charlie can cut wood with his saw.
John saw the train.

The teacher may ask the pupils to find the same word form in the two sentences, tell the difference in their meanings, and note the fact that the words, as far as appearance, spelling, and pronunciation are concerned, are identical. Further words might be introduced.

The following are examples of exercises used in Grade 3. The exercise below is a good example of developing the meaning of words and of checking up by completion exercises the pupil's mastery of the information conveyed. Thus the teacher can discover immediately whether the pupil has developed meanings clearly or not.

Sometimes you can get an idea of the meaning of a word from the way it is used in a sentence.

The word strong means can do hard work.

You might say, "A farmer must be strong to do all the hard work on his farm."

The word women means more than one woman.

You might say, "I saw two women walking down the road."

The word against means right up next to, or close to something.

You might say, "The boy was standing against the stone wall."

The word wound means something put all around another thing.

You might say, "The boy wound the string around the stick."

Now can you put the new words women, against, strong, wound in these sentences?

Jim was a big, _____ boy.

The silk thread was _____ around a small stick.

I will put the chair _____ the wall.

The _____ had babies in their arms.

The following exercise illustrates the use of a similar technique in bringing out the visual and auditory, as well as the meaningful, distinctions between three very similar words *thought*, *through*, and *though*. Informal activities involving similar experiences may be easily arranged. For example, children may make up sentences including the several words to be presented to each other or the teacher may write such sentences on the board.

Looking at Words

Some words look very much like other words. You have to look at them very closely to see that they are not the same words. Sometimes only one letter is left out.

You know the words thought and through, don't you? In the sentence there is a new word that looks like the old ones. It is though.

Read this sentence.

I would like to go skating even though it is much too cold.

Can you put the words thought, through, and though on the lines?

I _____ it was late.

I'll run _____ the woods.

I ran even _____ my foot hurt.

Even _____ the sun was out, I carried my new raincoat.

I _____ I heard a bell ringing.

When I was _____ my work I went to bed.

I sat on the ground to eat lunch even _____
I saw ants crawling over the roots.

Exercises for Enriching and Refining Word Meanings

Another variation of a similar exercise is shown below.

Read these sentences.

A joke was played on the alligators.

None of the animals stayed behind.

A boat can sail across a lake.

I caught my breath.

Tears were running down Freddy's fat face.

Roosters can't fly very well.

The new words in these sentences are sail, joke, caught, can't, none, tears

Draw a line under each new word.

Put the right word on each line.

The word that means "not any" is _____.

The word that means "to get and hold on to" is _____.

The word that means "water coming out of the eyes" is _____.

The word that means "playing a funny trick" is _____.

The exercise below illustrates a method of introducing work with antonyms in Grade 3.

Words Are Fun

Do you like words? Do you like the sound of them and the way they look? Words are fun. It is nice to know what they mean and how to use them. It is fun to learn new words, and it is fun to remember old ones.

Some words mean just about the same thing, as the words happy and glad, or earth and ground. But some words do not mean the same thing at all.

Here are a new word, heavy, and an old word, light. Do they mean the same thing? Put each one on the right line.

A feather is very _____.

A gun is very _____.

The following is a Grade 3 exercise based on similarity in meaning between single words and phrases.

"Read these sentences. Two of these sentences are very much alike. Put an X in front of the two sentences that are *alike*.

1. _____ I see my mother and father.
2. _____ I see my parents.
3. _____ I see my aunt and uncle."

An exercise in the classification of meanings, introduced in this case in the third grade, is illustrated below.

Write on the board: *large, small, big, little, brown*. "Here are some words. Most of them tell the size of things, but one of

Exercises for Enriching and Refining Word Meanings

them doesn't. It tells something else. Draw a line under all the words that tell about the size of things. Don't put a line under the one that tells something else.

"Here are some words that tell the color of things. There is one word that doesn't belong with the others. Draw a line under all the words that tell the color of things." Write on the board: *blue, red, black, fine, white.*

"Here are some other words. See if you can draw lines under all the ones that belong together. There will be one in each row that doesn't belong with the others."

cold	hot	warm	paper	icy
up	down	above	beside	brother
dress	stockings	baby	shoes	coat

Present each line separately, and suggest, for the first, that all the words but one tell how something feels when you touch it; for the second, that all the words but one tell where something is; for the third, that all the words but one are the names of things people wear. Each suggested answer should be discussed.

Another type of exercise on antonyms at the third-grade level is illustrated below.

Look at these pairs of words. If the two words in the pair mean different things, draw a line from one to the other.

better	worse
begin	start
evening	morning
ahead	behind
apples	fruit

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Still another exercise based on antonyms can be arranged by using such sentences as the following:

The rabbit can run _____ but a turtle moves _____
quickly
slowly

The same type of exercise can be employed for homonyms. For example,

The plane was made of _____
steel
steal

At the fourth- and upper-grade level other exercises may be employed with more definite and technical explanation of words of the same or different meanings, definitions, and the like. For example, in the fourth-grade level a statement such as the following might be printed for the pupils to read:

Words That Are Opposites

Some words do not mean the same thing. In fact, they mean opposite things. We say that such words are opposites. Here are the two words *black* and *white*. They mean opposite things.

Look at the words below and draw circles around the two opposites in each line.

uncovered scattered covered

Write the opposite of this sentence

1. The dog was happy.

Exercises for Fostering Word Enrichment and Word Perception Simultaneously

It may be noted that in many of the preceding exercises it is necessary for the pupil not only to derive the meaning of a word but

Exercises for Fostering Word Enrichment

also to distinguish the word from others more or less similar. It is easily possible to organize exercises which require the pupil to compare words likely to be confused with each other, or words which contain common visual or auditory features, which represent the letters in reverse or which contain other characteristics of value in improving word perception and word analysis. Directions to cut out, color, or arrange pictures or other materials, or to carry out activities may be printed in such a form that it is necessary both to get the meaning of the words and to compare words which it is desirable to help the pupil distinguish from each other. For example, note the following sentences which are printed under a picture:

Color the curtains blue and black.

Color the flower box blue.

Cut the dots for the moving picture.

Put in the pictures.

These materials are deliberately arranged to show *blue* beside *black*, *blue* beside *box*, *blue* over *box*, *cut* over *put*, *color* over *cut*. After the pupil has read the materials and carried out the directions he may be asked to discover the words that are the same and similar and to point out the nature of the similarities and differences in appearance and sound.

Various other devices may be used to give meaning to a group of words which may be profitably compared and contrasted with each other. Suppose, for example, that the words are *stick*, *story*, *store*, *street*. The teacher may indicate the meaning of one of these words in any one of several ways. She may do so by means of any one of the following statements:

"Find the name of something you like to read."

"Find the one that is in this picture." (The teacher shows the picture of a store.)

"Find the word that is needed to finish this sentence: In his right hand the man carried a big _____."

"Find the word which solves this riddle: I am in every town. I am long and straight. People walk along me every day. I am a _____."

Improvement of the Reading Vocabulary and Word Recognition

The teacher may give all the statements orally and put the words on the blackboard or print them on large cards or on the bulletin board, or she may print the statement on large sheets of paper or mimeograph, hectograph, or type them to place in the pupil's hand for individual work. Materials of these types are usually abundantly provided in ready-made workbooks, preparatory books, and various types of practice exercise books.

Many additional types of exercises which serve the same general purposes may be developed. Following are a few examples:

John walked down the _____ and went into the _____.
stick story store street

Every night mother tells us a story.
stick store

What did the teacher read to you?
stick street story store

The old man carried a big _____.
stick street story store

The teacher may place four sentences on the board or otherwise reproduce them, such as the following:

The man has a stick.
The man reads a story.
The man owns a store.
The man walks on the street.

The teacher may then show a picture of one at a time and have the pupils find the right sentence. Instead of showing the picture the teacher may describe first one, then another, of the situations orally. After the sentences have been read a special study of the four words may be made.

Another device consists in arranging words in a vertical column beside or in the line under or over a picture which illustrates the meaning of one of the series. The pupil looks at the picture to get the meaning and then finds and checks the word.

In the following exercise the pupil does not really need to consider the meaning of the words in order to execute the directions but

Exercises for Fostering Word Enrichment

the meanings of the words are indicated previously by means of the sentences which he reads.

Draw a line under each word that ends in ed in these two sentences

1. The boy liked the rubber heels on his new shoes.
2. The children learned to be quiet in school.

In sentence 1, there is a word that sounds like feels.

Write it here. _____

In sentence 2, there is a word that starts like queer.

Write it here. _____

The following two sentences are put in form for the pupil to read:

Jill liked her banana to be ripe.	her
She ate a banana here in school.	here

After the sentences are read, the pupils compare the two words on the right, locate them in the sentence, and point out the similarities and differences.

The following exercise is designed to attract attention to a common part of the word, but includes a comprehensive exercise to ensure that meanings are not disregarded.

Each of these words ends with the letters dle.

handle puddle candle

Put the right dle word on the line.

The captain knew how to _____ his ship.

The same policy is observed in the following exercise:

Read each sentence. Look at the two words under each line. On the line write the short word that has the same meaning as the two words.

1. "_____ going to a picnic," said Jim.

We are

2. "The girls _____ near the fire."

were not

Devices such as those outlined above may be used to bring out the similarities and differences among any kinds of words, such as words differing only in some detail within the word, such as *went* and *want*; words which represent the reversal of the letters, such as *was* and *saw*; words differing only in that one begins with a capital letter, the other with a lower-case letter, and so on. For example, the following is the method one teacher used in the study of *went* and *want*.

These two words were first encountered in a paragraph in a story. After the story had been read the pupils were asked to reread the paragraph and find *went* and underline it, second, to find *want* and underline it. The teacher then placed the two words on cards in plain sight of the class, one above the other. She asked the children to pronounce each word and to see if they could find the difference. Then she drew a circle around the vowel in each word. The fact that the other parts of the word were similar was pointed out and the need of giving particular attention to the second letter.

After this discussion the teacher put on the blackboard exercises of the following type:

went	
Jim	to the board.
want	

The children were to point out the right word. The incorrect word was then removed and the correct one put in place.

Exercises Designed to Foster "Analyzing Out" Common Word Elements

Exercises Designed to Foster "Analyzing Out" Common Word Elements

Most of the types of exercises mentioned in the preceding section may be employed for "analyzing out" various visual and phonetic elements such as letters, phonograms, syllables, and component words. In the exercise below the comprehension of the meaning can be ensured by showing a picture or giving an oral or printed question or statement before the pupils choose the several words. After the choices are made the pupils will be asked to note the letter in the first box and the phonogram in the second. Then they will look at the words again, pronounce them, and point to or underline the ones which contain the common factor.

<div>saw</div> <div>r ran</div> <div>red</div>	<div>what</div> <div><u>th</u> thank</div> <div>there</div>
--	---

Improvement of the Reading Vocabulary and Word Recognition

The following exercise serves a similar purpose. In this case substantially all the words previously presented—this exercise was used in the first grade—are included in the list and are thus reviewed with special attention given to the discovery of the *th*.

Put a box around

the word with th in it.

th

took

this

tell

th

then

tell

two

th

too

toys

there

th

train

they

took

th

the

tell

to

th

two

too

than

th



took

thank


Tags

Exercises Designed to Foster "Analyzing Out" Common Word Elements

In the next exercise a picture gives a clue to the word that is needed; after this word-meaning activity is completed the words are studied and the final phonograms indicated. The children may be asked to draw a line under the phonograms and the words which contain them.

<p>going <u>ing</u> morning walking</p> 	<p>when <u>en</u> kitten kitchen</p> 
---	--

In the following exercise the two words *stick* and *trick* are compared and the common syllable noted. This exercise is introduced early in the process of word analysis. At this stage the pupils are taught what the common element is.

<h3>Words Are Fun</h3>	
<p>The monkey took a little stick. He played a very funny trick.</p>	
<p>Put a box around ick in trick stick</p>	

Improvement of the Reading Vocabulary and Word Recognition

A similar form of exercise is illustrated in the material below. It will be noted that in the first of these the children are told the element to locate, but in the last they are merely requested to find the "two letters that are the same in each word." At a later stage they are given no clue at all, but merely told to find that part or those parts which are the same in all words.

Draw a line under the right word.

play

Charlie and Bingo liked to say.

way

Look at the words play, say, way.

Draw a circle around the letters ay in every word.

All these words end with the letters ny.

funny

many

pony

Put the right ny word on the line.

The boy looked _____ when he tried to skate.

Flowers grew in my garden and more will grow next spring.

Look at the words grew, new, few.

Draw a circle around two letters that are the same in each word.

Put the right word on each line.

Old trees _____ near the river.

We have only a _____ books.

Do you like my _____ cap?

Exercises Designed to Foster "Analyzing Out" Common Word Elements

The exercise below is a still more advanced type. Although the pupils are asked to carry out the first part of the exercise without a check on comprehension, note that the last item warns them that the meanings will be made a point in further discussion.

Look at the endings of all of these words.
Write each word in the correct list to show
how it ends. For example, wilderness belongs
in the last list

wilderness	sneezing	darting	careless
reminding	dying	pasted	eighty
valued	darkness	yawned	hasty
laundry	helpless	plenty	goodness
meanness	dry	selected	perched
sixty	fifty	curtsying	mounted

ing	ty	dry
ed	less	ness

Do you know the meaning of each of these words? If you find any you are not sure about, look them up in a dictionary.

Following is another exercise designed to encourage the identification of phonograms in printed words and also to refine meanings.

Read this sentence.

Sometimes you see a snake at the edge of a swamp.

Draw a line under the word that ends with the same sound as take.

The next exercise, taken from a third-grade preparatory book, illustrates a procedure in dealing with words in which the visual unit is identical but the sound is different.

Words Are Funny

Some words play tricks on you. Two words may have some of the same letters in them, but when you say the two words, they sound different.

Say these words: thought, though, through.

Do you hear how different they sound? But each of them has the letters ough in it.

There is a new ough word in this sentence. It sounds different, too.

The big boys were too rough to play tag with the little ones. Can you say the word rough?

Draw a line under the new ough word.

The following exercises illustrate methods of generalizing suffixes.

Words Are Fun

It is fun to make new words out of words that you know.

1. You know the word walking. Jim was walking down the street.

If you take ing from walking, which will you have?
wear walk think

2. You know the word jumped. Bill jumped up and down.

If you take ed from jumped, which will you have?
jump bump push

3. You know the word look "Look at the baby bear!" said Bobby.

If you put ing on look, which will you have?
going walking looking

Now read the story again and look for words with ed and ing.

Draw a line under all the words in the story that have ed and ing.

Draw a circle around the letters ing in every word

climbing climbed

says saying

calling called

pulled pulling

Put ing on the words to make new words.

climb _____

look _____

say _____

build _____

Put the right words on the lines.

Mother was _____ in her chair.

sit sitting

The farmer was _____ his hay into the barn.

getting get

Jupie was _____ Jean his garden.

show showing

Exercises similar to those illustrated in the preceding sections may be used to teach children how to locate little words in big words.

Can you find it?

farm farmer

Words Are Fun

Can you find a little word in a big one?

Do you see at in cat? cat

Draw a line around at in cat.

Here are some to do, too.

<u>all</u>	c <u>all</u>
<u>big</u>	bigger
<u>go</u>	going
<u>look</u>	looked
<u>in</u>	into
<u>farm</u>	farmer

<u>play</u>	played
<u>want</u>	wanted
<u>big</u>	biggest
<u>some</u>	something
<u>to</u>	tomorrow, today
<u>to</u>	into

Word-Study Games

For children making normal progress and especially for children in need of educational experience, various games requiring the discrimination of words are frequently used. Following are a few examples:

Domino Game. Use about twenty-four different dominolike cards—each card with a word at either end. The words should be of the same length. Thus *car* may be at one end and *cat* on the other end of a card. Play like dominoes. Each child must pronounce the words. The player who gets rid of his cards first wins. Include many cards containing the elements to be emphasized.

Calling-Card Game. Use about twenty words and make two copies of each, forty cards in all. Deal out about seven cards. The players discard words for which they have matching cards. They should take turns in calling for words needed to match the cards in their hands. The remaining cards are dealt out as is necessary. The child that matches all of his cards first wins; others count their pairs. Words with which the children playing need practice should be freely used.

"Authors" Game. Sets of words with visually similar beginnings or endings, *ball, bat, baby, base, bark*, may be used in the manner of the familiar "Authors" game.

Other suitable games may be easily devised, involving simple material or more or less complicated apparatus. For example, a ladder-climbing game can be made by placing word-cards on a ladder-like drawing made on the board. The words may increase from easy to more difficult ones. The child attempts to see how high he can climb. A spinning-wheel game may be made from cardboard, in which the words are placed about the circumference of a circular disk. The disk is spun and the pupil attempts to recognize the word that stops at a particular place.

In general, games have merit especially for slow learners in that they permit an increase in the variety of activities and are often as much enjoyed as similar games using symbols other than words. In using games it is desirable to include, as far as possible, the prin-

ciples which apply to all types of word activity. For example, arrange a game so that the word must be recognized and pronounced as a whole and, if possible, so that its meaning is made important. By careful management, progressive stages in word recognition can be provided for in the form of games. Games have merit if the reaction which they elicit is a desirable one and if they provide properly systematic development of reading techniques.

Syllabication

Some small words have only one part, like the word cat. Other words have two parts, like the word kit | ten.

Longer words have three or more parts. The word won | der | ful has three parts. Do you hear the three parts when you say the word, wonderful?

Read these sentences.

I climbed the tree and threw down twenty apples.

I watched the apples fall down with a bang.

"Eating too many apples makes you sick," said Mother.

Each of these words has one part.

threw bang sick

Find these one-part words in the sentences above.

Read these sentences.

Soda is good for a stomach-ache.

Loud sounds will frighten small children.

Mr. Jolly's dog was angry when he saw Mr. Duckit's cat.

Each of these words has two parts.

soda angry frighten

Say each word. Do you hear the two parts?

Draw a line between the two parts of each word.

Syllabication

As pointed out in earlier sections, children can learn to see syllables as well as component words from a fairly early stage. A beginning in the technique of dividing words into syllables may be made in the first grade. High levels of efficiency in dealing with long and complex words should, of course, not be expected until the pupils

Read these sentences.

The old man said, "I can remember I was frightened by the roar of an animal when I was a little boy."

Mary made some gingerbread for us to have with our tea.

Once Dick took some soda for a stomach-ache.

A Chinese princess had a wonderful idea about using silk thread to make cloth.

Each of these words has three parts.

re | mem | ber
gingerbread
stomach-ache
wonderful
gardener

Say each word. Do you hear the three parts?

Draw a line between each part of the word to show that there are three parts.

Put the right three-part word on the line.

I like to eat _____ with my tea.

Eating too much food may give you a _____.

It is said that an elephant can _____ things for a long time.

Bobby thought the circus horse that could bow was _____.

have had many months of experience. It is highly important that skill begin to appear in the latter part of the second grade and the early part of the third. A fairly definite program of instruction in syllabication should be introduced early in the third grade. On pages 286-290 are examples of printed material to be presented to the child to give him insight and provide practice in working out the recognition and pronunciation of words by syllabication.

Parts of Words

You remember that some words like struck or whisk have only one part and others have two, or three, or more. Look at the words here. If the word has only one part, draw a circle around it. If it has two or three parts, draw a line between the parts, like this, peck | ing.

chalk

tinder

knapsack

nightingale

struck

spent

dream

Stumpingham

inn

marry

Put the one-part words on the lines.

The boy wrote on the blackboard with a piece of

_____.

The guard spent his money to stay all night at the

_____.

A branch from a tree fell and _____ a boy on the head.

The soldier _____ his last penny for a piece of bread.

The Princess had a queer _____.

Syllabication

Following is an exercise on syllabication used in the fourth grade.

Syllables in Words

Many words have more than one part. These parts are called syllables. Some words cannot be divided. They have only one syllable.

Look at the words below. Say each one to yourself. Has it one or more syllables? Write each word in the column where it belongs.

club	cradle	workman
serpents	Atlas	seek
modestly	cushion	grateful
ordinary	deed	fortune
burden	stable	gay
duty	giant	leap

One Syllable	Two Syllables	Three Syllables	Four Syllables

Accents on Syllables

If you wish to say a word correctly, you must know on which syllable the accent is placed. The accented syllable in a word is the syllable that we speak with the most force. In a dictionary this syllable has an accent mark.

Look at the words below. They have been divided into syllables. Put an accent mark on the correct syllable. The first word is marked for you.

ser'pents	
mod est ly	At las
or di nar y	cush ion
bur den	sta ble
du ty	work man
gi ant	grate ful
cra dle	for tune
co lo ni al	drag on
dash er	ga rage
a slant	her ald
brisk ly	lin er
fi ber	se pi a

Various devices may be used in demonstration and instruction concerning the technique of dividing words into syllables. For example, a teacher may use a card with which she first covers all but the first syllable and then asks the pupil to pronounce that syllable. Next she uncovers the second syllable which is pronounced, and so on. Then while the whole word is exposed, the pupil picks out the

Devices for Securing More Vigorous Response to Words

syllables in order and pronounces them. This may be followed by practice in which the pupil looks over the words and draws a line between the several syllables.

Devices for Securing More Vigorous Response to Words

As pointed out in an earlier section, some children fail to learn to recognize words primarily because they take a rather passive attitude toward them instead of reacting vigorously. Word analysis requires attentive, active response, especially a searching analytical reaction. For very slow children who seem to respond with little vigor and attention, special devices are sometimes used to sharpen their interest and attention. On preceding pages were offered suggestions for increasing interest in words by making the meanings and uses to which they are put more dramatic and meaningful. Various mechanical devices are sometimes also employed. Among them are flash cards, tachistoscopes, the Metronoscope, projection lanterns, the Flash-Meter, and other similar devices.

Flash Cards. Flash cards are often suggested as a means of encouraging a pupil to recognize words more quickly instead of working them out by a slow, labored, analytical process, as well as for the purpose of making work with words more interesting. For the latter purpose, some work with flash cards is defensible.

For example, a game can be played in which the pupils are to compete with each other in recognizing the words presented in a flash. The card is usually flashed by picking it up, letting it remain in view for one-fifth of a second, more or less, and then turning it down; or it may be held behind a blank card, jerked quickly into view, and pushed back out of view, after a suitable interval. Experiences of this sort are useful in demonstrating the fact that words can be recognized in an instant without detailed study. Further discussion of this use of the flash-card technique is offered in Chap. 12, in connection with the development of skill in reading words by thought units. This technique will usually rouse up the more sluggish children and induce them to respond to the word more vigorously and actively. It therefore has a value in attempting

to get pupils interested in applying themselves with full attention to the study of words.

Tachistoscopes. These are mechanical devices for flashing words or other materials. There are many types of them. Some are large instruments designed to flash words printed large enough for use with a class as a whole. There are also various small gadgets in which words may be typed on a band of paper and presented one at a time. Some of them need to be operated by a teacher or another child, whereas others embody a mechanical device by means of which the pupil can flash the words for himself. These devices serve the same general purpose as the ordinary flash-card technique. Some of them make a particular appeal to the almost universal interest of children, especially boys, in mechanical gadgets.¹

The Metronoscope. This is a rather elaborate tachistoscope in which words and other materials may be exposed for a predetermined period of time. Metronoscopes are made in large sizes for use in the class as a whole and in small sizes for the individual child. They have certain mechanical advantages over some of the cruder tachistoscopes but are educationally in the same class. A more detailed discussion of this device will be presented in Chap. 11.

Projection Lanterns and the Flash-Meter. As a variation from the study of words on the blackboard or bulletin board or printed sheets of paper, teachers sometimes develop slides by means of which words, with or without illustrations, can be used in an ordinary projection lantern. The entire merit of this type of presentation is in its novelty and variety. A device called the "Flash-Meter"² which is similar to the exposure shutter on an ordinary camera, has been developed to make possible the flashing of words or phrases by means of a typical projection lantern. This device sometimes appeals keenly to pupil's interest, but because of shifting and the intensity of light, and for other reasons, the recognition of words flashed on the screen is somewhat more difficult than the recognition of words when flashed with the ordinary flash cards.

¹ Various tachistoscopes, small and large, are distributed by the C. H. Stoelting Company, Chicago. The World Book Company, Yonkers-on-Hudson, New York, distributes some simple, very inexpensive cardboard tachistoscopes designed by Dr. D. D. Durrell.

² Distributed by Keystone View Company, Meadville, Pa.

The Development of Helpful Techniques in Spelling and Writing

In general, all these devices are recommended chiefly for special purposes and temporary use. They are too artificial, too expensive and difficult to employ, to form a basis for any very substantial part of a word-study program. Their use is sometimes indicated, however, to arouse interest and give variety to the training of the retarded pupil.

The Development of Helpful Techniques in Spelling and Writing

In the preceding chapter some tests by means of which the techniques employed in spelling and writing could be determined were described. In the modern program in spelling and writing, considerable attention is usually given to the development of appropriate techniques of word study. Indeed in many ways the spelling lesson provides a more natural opportunity for training in word study and word analysis than does the reading lesson. Interruptions in reading for the purpose of studying a difficult word immediately have certain drawbacks. When a child is reading, a prolonged interruption may distract his mind and interfere with the major purpose of the activity. In spelling, on the other hand, the major problem is a word-study problem. Interruptions are not so serious and definite instruction and practices are more in keeping with the spirit of the program as a whole.

It is important that the techniques taught in reading and spelling and used by the pupil in both situations should harmonize and not conflict with each other. For example, if the teacher is trying to get the pupil to perceive the word in reading by the larger units, such as syllables, large phonograms, or component words, whereas at the same time she is teaching him to spell by means of letter-by-letter procedure, two rather contradictory habits are being established simultaneously. If the instruction in spelling is more definite and precise, the pupil is likely to resort to letter-by-letter analysis when he encounters an unfamiliar word in reading or when he tries to learn a new word.

The child who is slow in reading should, if possible, be provided with one of the more recent programs in spelling in which attention

is given to the development of effective modern techniques in studying the spelling of words and in which a wide variety of word-enrichment and word-analysis activities is included. The generalization program and the devices employed to develop a clear awareness of suffixes and prefixes, the characteristics of word derivatives, and a familiarity with the most common phonograms and syllables may prove to be of enormous value in helping the pupil learn to recognize words in reading. Indeed, in some cases, weakness in the spelling program may be responsible to a larger degree for the reading defect than is weakness in the reading program itself.¹

Following is a method of studying words which has proved to be especially helpful for the child who is retarded in his word-recognition and word-analysis program. This method involves the following steps which are indicated in the directions printed for the pupil himself to study:

1. Look at the word carefully and say it softly to yourself. If it has more than one part, say it again, part by part, looking at each part.
2. Look at the letters and say them. If the word has more than one part, say the letters part by part.
3. Write the word without looking at your book.
4. Look at your book and see if you spelled the word right. If you did, write it again and then look at your book again. Do this once more.
5. If you did not spell the word right, see what letters you missed. Go through steps 1 and 2 again, looking very carefully at the letters you missed. Then do 3 and 4 again until you have written the word right three times without missing.

This procedure is somewhat simpler than the many-step technique recommended a few years ago. It does not include such a step as visualization which is usually unnecessary for the quick learners and unintelligible for the poor learner. The technique as given above is suitable for the second or third grade. As the pupil advances in ability certain additional suggestions providing for more detailed

¹ Fuller discussion of this topic will be found in Arthur I. Gates, "Reading in Relation to Spelling," *Macmillan Teachers Service Bulletin*, October, 1944, Vol. 2, No. 6.

Treatment of Difficulties in Naming and Sounding Letters

analysis may be included. For the poor reader the simple procedure outlined above is the most suitable.

Treatment of Difficulties in Naming and Sounding Letters and in Blending Letter Sounds

In Chap. 8 several tests utilized to diagnose the pupil's difficulty in naming and sounding individual letters and in blending them to work out the recognition and pronunciation of words were described. In discussing these tests the following possible causes of special difficulty were mentioned:

1. Inability to recognize the individual letters.
2. Inability to give the most common sounds which the individual letters represent.
3. Inability to blend the several sounds represented by the letters in a word.
4. Lack of versatility or inability to try out different familiar sounds of the letters, such as both the long and the short sounds of the vowels or the hard and the soft sound of *c*.

If the pupil is unable to work out words from the sounds of the letters with a reasonable degree of efficiency, the first step is to attempt to locate the specific difficulty. It may be in one or it may be in two or more or all of the steps mentioned above.

Teaching the Child to Recognize the Letters. If a child is unable to recognize and name a considerable number of the letters, a full program in letter recognition should be introduced. In the early stages unfamiliar methods for teaching the letters, such as classifying words on the basis of the initial letters, making up a dictionary of words previously studied, or sorting word cards for the teacher should be employed. If a child is more advanced, a more deliberate and direct study of letters may be undertaken. If the pupil's difficulty is limited to a relatively few letters which he tends persistently to confuse, special exercises, such as the following, may be employed.

Among the lower-case letters those most commonly miscalled are, in the order of frequency, *q*, *l*, *z*, *v*, *b*, *j*, *d*, *u*, *y*, and *m*. Some of

these letters are very commonly confused with each other. For example, *b* and *d*, *v* and *u*, *z* and *x*, *j* and *i*, *p* and *b*, *m* and *n*, *y* and *u*, *e* and *c*, *s* and *c*, and, most commonly of all, *q* and *p* and *l* and *i*. In naming the capital letters, those most frequently miscalled, in order of frequency, are *Q*, *Z*, *V*, *Y*, *U*, *G*, *J*, and *M*. Capital letters frequently mistaken for each other are *Q* and *O*, *U* and *V*, *E* and *F*, *Y* and *U*, *M* and *N*, *G* and *C*, *Z* and *X*, *S* and *C*. In the case of such confusing letters, the following exercise might be tried:

1. Compare the two letters directly with each other by placing them side by side or one above the other.
2. Teach the pupil to write the letters in print-type form.
3. Write the confused letters on tissue paper and superimpose one upon the other to show the difference.
4. Compare these letters as the initial or final letters of words.

bad	dent	bad
dad	bent	bob

Teaching the Letter Sounds. For the average pupil some letter sounds are less frequently learned than others. The following table gives a relative number of confusions shown by a group of representative pupils. Some of these are obviously due to misrecognition of letters. This table is read as follows: *u* is called *n* six times, *y* four times, *w* three times and miscellaneous other letters thirteen times in a total of twenty-six errors which were recorded in a special study.

ERRORS IN SOUNDING LOWER-CASE LETTERS

u — n = 6 y = 4 w = 3 Miscellaneous 13 Total 26.
o — Miscellaneous 4 Total 4.
y — w = 26 wy = 15 u = 4 v = 3 Miscellaneous 10 Total 58.
i — ū = 4 ū = 4 ā = 4 Miscellaneous 6 Total 18.
e — Miscellaneous 6 Total 6.
a — ū = 2 ū = 2 ě = 2 Miscellaneous 5 Total 11.
s — Miscellaneous 4 Total 4.
t — s = 2 Miscellaneous 3 Total 5.

Treatment of Difficulties in Naming and Sounding Letters

c — z = 3 Total 3
p — b = 3 Miscellaneous 4 Total 7.
x — k = 8 ċ = 7 ċk = 5 ċk = 4 z = 3 Miscellaneous 6 Total 33.
f — ef = 4 ċ = 2 t = 2 Miscellaneous 5 Total 13.
d — b = 15 p = 8 de = 4 t = 3 Miscellaneous 3 Total 33.
b — d = 15 p = 9 t = 3 Miscellaneous 5 Total 32.
z — x = 9 v = 3 Miscellaneous 8 Total 20.
r — u = 3 a = 2 Miscellaneous 2 Total 8.
m — n = 10 em = 4 e = 3 Miscellaneous 2 Total 19.
l — i = 26 a = 3 u = 6 Miscellaneous 4 Total 39.
q — p = 60 b = 7 Miscellaneous 10 Total 77.
j — i = 5 jay = 4 k = 2 Miscellaneous 6 Total 17.
k — Miscellaneous 9 Total 9.
w — d = 9 u = 5 m = 4 dub = 3 y = 2 Miscellaneous 5 Total 28.
g — k = 4 b = 2 Miscellaneous 7 Total 13.
h — ch = 4 aitch = 2 e = 2 Miscellaneous 6 Total 14.
n — m = 6 en = 6 d = 2 h = 3 e = 5 Total 22.
v — u = 4 z = 4 y = 2 w = 3 s = 3 Miscellaneous 7 Total 23.

For children who are slow in learning the sounds of letters, careful, direct practice in analyzing sounds of the letters as they appear in representative words usually proves to be the most useful procedure.

Following is an outline of a typical lesson. It is designed to teach the pupil to recognize the two distinctive sounds of the letter *c*.

Draw a line under the right word.

One night a brownie went down to the cellar.

city

circus

(Leave this exercise on the board when you continue with the next one.)

coal

He wanted to get some cold for the stove.

corn

Improvement of the Reading Vocabulary and Word Recognition

"Look at *city*, *cellar*, *circus*. How are they alike? (When the children have concluded that they begin with the same letter and the same sound, point to the second group.) Now look at *coal*, *cold*, *corn*. How are they alike? (When the children have again concluded that they, too, begin with the same letter and the same sound, ask):

"Do *city* and *coal* begin with the same letter? Do they begin with the same sound? Then *c* must have two different sounds. Whenever *c* and *o* come together, the way they do in *coal*, *cold*, and *corn*, *c* has the same hard sound as *k*. When *ci* and *ce* come together at the beginning of a word, then the *c* sounds like *s*. Look at this word (write *come*). What is it? Does it have a sound like *coal* or like *city*? And you see, there is an *o* after the *c*. Let's take a page of our notebooks for these words that begin with *c*. We can put those belonging with *cellar* and *city* at the top of the page and those that belong with *coal* in the middle." (Illustrate.)

Following is an illustrative exercise in developing the long and the short sound of the letters *e* and *a*. For pupils to become reasonably competent in working with words on the basis of letter sounds, it is necessary for them to be able to learn some of the most distinctive vowel and consonant sounds. It is not, however, necessary or advisable to try to teach pupils the fine shades of difference. For example, in the case of the vowels, a good approximation to the long sound and short sound is usually sufficient. It is, of course, necessary to learn that some of the consonants, as in the case of *c* above, may carry very different sounds in some words.

If the pupil does not respond reasonably readily to definite instruction in giving a few of the more obvious letter sounds, he should be suspected of some limitation in sound perception. For such a child an expert examination by means of an audiometer is highly desirable.

Teaching the Pupil to Blend Letter Sounds. It should be obvious that the pupil cannot be expected to blend letter sounds unless he can readily recognize letters and translate them reasonably promptly into sounds. If there is excessive difficulty and delay in thinking of the sounds which go with individual letters, the child is unlikely to remember the series of sounds represented by a word well enough to keep them in mind for purposes of blending. The

Write:

We know two sounds of e.

e as in elephant

e as in even

Place this material where it need not be erased for several days, and where there will be space to add words illustrating other vowel sounds. Then ask: "Can you tell which of these words have the long sound of e and which the short sound?" (Write before, bed, best, bell, began, me.)

Now write on the board:

"Something must be the matter," cried Jane's mother.

"What two words in this sentence have the letter a in them? Do matter and Jane have the same sound of a? You remember that the long sound of e is the same as the name of the letter. The long sound of a is the same as the name of the letter, too."

"Here are some words that have the long sound of a in them." Write one under the other, late, skate, came, Jane, papers.

"Can you read these words and hear the long sound of a in each one?"

"And here are some words that have the short sound of a in them." (Write one under the other, cat, ran, that, flags, grass.)

Leave these lists on the board and ask: "Now see if you can tell which sound of a these words have." (Write cap, made, can, back, baby. Add short and long a to your board chart, using, e g., Jane and after as guide words.)

pupil should therefore have a considerable degree of skill in giving the sounds of letters individually before pressure is put upon him to blend them.

Pupils who devote too much attention to the individual letter sounds or who treat them as discrete items, may be helped by encouragement and by guidance in blending the sounds. They should be told and shown how to avoid biting off the sounds and how to run them together quickly. They can be assisted in directing their attention toward the total effect rather than the component sounds. The teacher may demonstrate the running of the sounds together. She may ask the pupil to listen to the sounds for the purpose of thinking of the whole word suggested. As a result of this demonstration and of practice by the pupil, he may learn a more helpful method of blending.

Children may be found who can blend sounds reasonably well when they are given to them by the teacher but who are unable to do it well when faced with a printed word, even when they can recognize the letters and translate them individually into letter sounds. In the initial stages this difficulty may be due to the fact that some of the pupil's attention is taken up with the recognition of the letters and translating them into sounds. Often this difficulty will be overcome by experience in working with the printed form. A second possible cause of the difficulty is an emotional tension, blocking, or panic, which the task of attempting to blend printed words may bring on. Attitudes of this sort may usually be traced back to earlier experiences in which the pupil has been excited, humiliated, discouraged, or otherwise strongly affected, emotionally, during an effort to blend word sounds.

If the difficulty is due to sheer lack of experience in blending while observing and studying the word form the remedy merely is more experience by good methods. If the trouble is due to emotional disturbances produced by the task itself, the remedy involves primarily reconditioning of the pupil to the task. This can usually be accomplished by tactful work with the pupil for a time in private, under conditions which tend to restore emotional balance and confidence.

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Pupils whose main difficulty is that they lack flexibility and persist in repeating the same sound series or who give up the effort when the first series of sounds they utter does not suggest the word, are quite numerous. In such cases, one should first of all be sure that the children really know some of the more distinctive sounds, such as the long and short vowel sounds which the letters represent. They should then be encouraged to use the try-and-try again method. The teacher may ask the pupil to try to think of other sounds for the letters in the word and to try to blend them. If this is unsuccessful, she may ask them to try again. She may demonstrate various combinations which approach closer and closer to the series appropriate to the word, while the pupil observes the word and tries to think what it is as he hears the several series of sounds.

Other Causes of Difficulties in Word Recognition. Serious deficiency in word recognition may be caused by factors not fully presented in this chapter. For example, pupils with very low intelligence quotients find any kind of analytical work with words very difficult. Visual deficiencies of certain sorts may prove a serious handicap for other pupils. One of the most common causes of extreme difficulty in recognizing words typically characterized by frequent reversal errors, such as *was* for *saw* and "wild guesses," may be the result of failure to acquire the habit of observing the word systematically from left to right. These and certain other factors related to difficulty in word recognition are considered in later chapters.

References

Most of the books listed in Appendix 1 treat the topics of this chapter. See also W. S. Gray and E. Holmes, *Development of Meaning Vocabularies in Reading, An Experimental Study*, Chicago University Laboratory Schools Publications, Chicago, Ill., 1938.

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Exercises

1. Discuss the ways in which a teacher may emphasize reading for meaning.
2. In what ways may the pupil's interest and success with approaches to word-form discrimination be stimulated?
3. Make a set of *Do's* and *Don't's* for teachers of primary reading. Such a list might have hundreds of items; try to include concrete suggestions only.
4. Discuss the values of comparison of a new with an old word as a technique of teaching.
5. What is meant by "visual analysis"? What is its place in the recognition of new words?
6. Why are frequent reviews and diagnostic tests essential to good reading progress?
7. What are the concrete positive values in using a basal reading series in the primary grades?
8. Of the three teaching methods illustrated in teaching the word *office*, which do you think would be least effective? Why?
9. What are the purposes of nonmeaningful arrangement of words in word-analysis exercises?
10. Write three exercises for word enrichment modeled on those used in the text. Select the words from the vocabulary of a standard basal series, and be sure the exercise fulfills the purpose you intend.
11. Discuss the kinds of exercises that may be used to develop both word enrichment and word perception.
12. Examine a standard workbook to accompany a basal reader of primary grade and select three exercises designed to foster "analyzing out" common word elements.
13. What qualities are important for a word-study game? What are the values of such games?
14. What is the primary value of mechanical devices such as the tachistoscope in teaching reading?
15. In what way may a spelling program contribute to a remedial reading program?
16. A pupil has difficulty with blending two single-letter sounds together. Suggest a set of procedures by means of which you will work with him on the problem.

chapter 10 Diagnosis and Development of
the Left-to-Right Direction of
Attack Word Perception

The importance of developing the habit of moving the eyes along the printed words from left to right, and especially of observing the word in the right-hand direction during word study, or during attempts to work out the recognition and pronunciation of unfamiliar words, was explained in some detail in Chaps. 2, 6, and 7. It was pointed out in those chapters that this habit of observing words invariably from the beginning to the end in the rightward direction is rather an unnatural one and that considerable careful training is required to establish it. It was also explained that failure to develop this direction of consistent perceptual attack will produce a variety of difficulties in word recognition. If the pupil tends to look over a word backward and forward and observes the letters in miscellaneous order he may be unable to learn to recognize words and become an extreme case of reading dis-

ability. If he breaks away from the consistent left-to-right observation of words only occasionally he may learn words fairly well but be subject to frequent errors of various sorts; reversal errors, semi-reversal errors, and other errors due to giving words that resemble the actual one only in part. The most frequent result of such an irregular order of study is complete failure to recognize the word since the parts of the word as seen do not resemble any familiar word, or the resemblance of the given word to the printed one is difficult to see.

As pointed out in Chap. 6, the habit of observing consistently from left to right is so important and so difficult that the preliminary work is recommended for the prereading period. In this period the pupil learns the words *left* and *right*, becomes acquainted with the act of moving on a printed page from left to right in observing pictures, and eventually by observing the teacher recognizes words as she sweeps a pointer under them from left to right. Definite instructions in looking across a word in this direction may also be given in the preliminary stage. Very careful instruction is recommended in connection with the first lessons in reading. In the discussion of principles to be observed in studying words and in developing the technique of working out the recognition and pronunciation of unfamiliar words, due consideration was given to the effect of various practices upon the development of the habit of observing words in the rightward direction. For example, in the initial stages special pains are taken to attract the pupil's attention to the feature of the beginning of the word first, and of approaching a picture or word only by progressing across it from the left side.

This chapter is devoted to the problem of developing the appropriate left-to-right perceptual attack upon words, to the character of difficulties and failures, various suggested causes of them, and to more detailed and intensive methods of instruction and remediation.

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Transfer of Habits from Observing Objects. The most common cause of inappropriate attacks in reading and word observation

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and study is probably the transfer to these tasks of the techniques or habits used in observing other objects—faces, hats, pictures, houses, trees, patterns in rugs, and so on. In none of these cases is it essential always to observe systematically from left to right. The child begins by observing words as he would any other object. Difficulties soon appear as a result of the peculiar character of words. The child does not, without assistance, always discover what the difficulty is or the fact that the only approach that will work is the left-to-right direction.

Lack of guidance and instruction by the teacher in the left-to-right progression may, therefore, result in many failures to acquire the essential techniques. Although most teachers give instruction in reading the printed line from left to right, many do not give much attention to the studying and observing of the individual word in this direction. As a result, some children, who will progress properly along the line as long as they can recognize the words, adopt all sorts of inappropriate orders of attack upon the unfamiliar words which are encountered. In studying new words, in lists, on the blackboard and charts, and in context, these children may view the word in various ways. As a result, it is difficult for them to learn to recognize words, and their way of seeing many words is antagonistic to the left-to-right movement in reading a line.

Prolonged Study of Words Made Necessary by Too Heavy a Vocabulary Burden. Studies by Buswell¹ and others show that when a pupil encounters an unfamiliar word in context, in the initial stages of reading, he is forced to make a prolonged study of it. The pupil may make eight or ten fixations at different points in the word, going back and forth over it in different ways. Too many unfamiliar words thus force the child to discard regular progressive movement along the line and to practice regressive movements. To secure sufficient practice in regular left-to-right progression, an abundance of material largely free of word-recognition difficulties must be provided.

¹ Buswell, G. T., *Fundamental Reading Habits: A Study of Their Development*, University of Chicago Press, Chicago, 1922.

Use of Techniques Which Emphasize the Final Parts of Words. To introduce instruction which emphasizes the ending of a word in the early lessons before the left-to-right progression is habituated, unless correcting devices which emphasize the initial part are used, would tend to set up habits of looking at the end first, and at the middle or beginning later. The extensive use of rhymes with visual study of the rhyming element, or of final rather than initial phonograms, is an illustration. Trained to look first at the ending of a word, and then at the middle or beginning, the pupil is habituated to a word-study attack which should produce various reversal errors.

The causes given above consist of circumstances and forms of training which lead the beginner to form inappropriate habits of reading and word study. They are presumably difficulties which may be avoided by proper training. In addition to these, there are constitutional limitations and characteristics which may predispose the beginner toward the formation of inappropriate habits. A number of such causes have been suggested, some of which are supported by substantial evidence and some of which are highly speculative. Some involve rather technical considerations of physiology, anatomy, and psychology. It seems advisable to present only a few of these here.

Prolonged Study Due to Visual Defects. Data gathered by the author¹ and his students show that visual defects of various sorts are more than twice as numerous among pupils who make reversal and other errors in reading as among pupils who do not. That serious visual defect contributes to various difficulties in reading has been shown in many other studies.

A defect which makes the vision of a word unclear would not only make the word difficult to learn and recognize, but also tend to produce prolonged study and frequent refixations. Since detailed study during ordinary reading tends to result in back-and-forth

¹ Gates, A. I., and C. C. Bennett, *Reversal Tendencies in Reading: Causes, Diagnosis, Prevention and Correction*, Teachers College, Columbia University, New York, 1933, p. 33; and Paul Fendrick, *A Study of the Visual Characteristics of Poor Readers*, Teachers College Contributions to Education, Teachers College, Columbia University, New York, 1935.

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refixations, it would, in many cases, result in developing inappropriate methods of perception.

Evidence gathered by Selzer,¹ Betts,² Fendrick,³ and others indicates that other types of visual defect, such as heterophoria, alternating vision, or suspensopia, tend to foster the development of inappropriate directions of attack in studying words. Hence, the vision of pupils subject to such difficulties should be examined and corrected whenever this is possible.

Left-handedness. The association between left-handed writing and the tendency to write mirrorwise has been frequently reported. Thus, Javal, in 1906, stated that mirror writing appeared to be normal for left-handed persons.⁴ Carmichael and Dearborn⁵ developed an explanation of left-to-right writing by the right hand and right-to-left and mirror writing by the left hand in terms of convenience. The theory is that the right-handed person finds movements from a point in front of the center of the body toward the right—and in the case of writing, observation of what has been written in this direction—to be easier, whereas the left-handed person finds movements and observation of what has been written to be easier in the reverse direction. How this tendency in the left-handed person may lead to difficulties in reading is explained by Dearborn as follows:

In the cases of non-readers studied by the writer, now numbering about twenty-five, at least a third have been left-handed. This is, of course, somewhat larger in proportion than would be expected in a group of otherwise normal or superior children such as all of these pupils are. The way in which left-handedness may possibly operate as an initial handicap in reading, just as it has been shown to be in writing, is suggested by the fol-

¹ Selzer, C. A., *Lateral Dominance and Visual Fusion*, Harvard Monographs in Education No. 12, Harvard University Press, Cambridge, Mass., 1933.

² Betts, E. A., "Teacher Analysis of Reading Disabilities," *Elementary English Review*, April, 1934.

³ Fendrick, Paul, *A Study of the Visual Characteristics of Poor Readers*, Teachers College Contributions to Education, Teachers College, Columbia University, New York, 1935

⁴ Javal, E., *Essai sur la Physiologie de l'écriture*, Paris, 1906

⁵ Carmichael, L., Elizabeth Evans, and W. F. Dearborn, *Special Disabilities in Learning to Read and Write*, Harvard Monographs in Education, Harvard University Press, Cambridge, Mass., 1925, Vol. 2, No. 1, pp. 1-6 by W. F. Dearborn, and pp. 36-50 by L. Carmichael.

lowing observations. The outgoing movement of the left hand is from the center of the body toward the left. The left-handed person, possibly because he watches what his preferred hand does and thus establishes the habit, may show a preference for this same direction in his eye-movements. The reading of "saw" as "was" is a very commonly observed error, although it is by no means confined to the left-handed reader. In tachistoscopic experiments there is a tendency for the left-handed to catch the end letters of the word first, just as the right-handed commonly get the initial letters first. The reading of "when" as "now" would seem unintelligible except as one had observed this tendency.

Since the time this statement was written, many studies have been made concerning the relation of handedness and reading ability.¹ These studies may be summarized by saying that left-handed children in general do not show markedly greater difficulty in reading in general and no markedly greater tendency in particular to make reversal errors than right-handed; that of those who make reversal errors the percentage of left-handed is not much greater than in the population at large; and that among those subject to serious difficulties in reading the percentage is similar to that found among representative readers.

This means merely that left-handedness or left-handed writing

¹ Gates, A. I., and C. C. Bennett, *Reversal Tendencies in Reading: Causes, Diagnosis, Prevention and Correction*, Teachers College, Columbia University, New York, 1933, p. 33.

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can at the most be at the basis of only a few cases of difficulties in reading or of reversal errors. The data do not, moreover, conflict with the Carmichael-Dearborn theory that if a beginner does tend to write words from right to left or mirrorwise, perceptual habits are set up which interfere with normal development of reading skill and which tend to produce reversal errors. Studies based upon pupils who begin in this way, whether generally left- or right-handed, may show this theory to be sound.

Eye-dominance. In 1924 Parson published a monograph¹ presenting data to confirm his theory that "dominance" is really determined not by a hand-preference but by an eye-preference. Indeed, the hand is rather to be thought of as a servant of the eye. A person who is left-eyed tends to guide his adjustment with reference to the point of regard to this eye—to the point or thing aimed at. The left-eyed person thus is usually a left-handed person, since the left hand serves this area aimed at better than the right. Parson proposes as a test of general dominance a determination of which eye is used in aiming. This test and others are described in Appendix 2.

Certain studies have failed to confirm Parson's contention that a person's dominant eye corresponds to the dominant hand. Thus, the left-eyed person may adapt himself more readily to things on the left side of the field of view. Monroe suggests that "in moving the eyes from a central point toward the right, the left field of vision becomes obstructed by the bridge of the nose. The development of the progressively left-to-the-right movements demanded in reading may be more difficult for a left-eyed child than for a right-eyed child."² Since the bridge of the nose rarely obstructs either eye's view of a printed page at reading distance, it would perhaps be better to suggest that, in the pupil whose left eye is dominant, right-to-left movements are more commonly used in observing situations in which the bridge of the nose is an obstruction when the right eye is employed. The tendency thus established to view the field from right to left may operate in beginning reading and

¹ Parson, B. S., *Left-handedness*, The Macmillan Company, New York, 1924.

² Monroe, Marion, *op. cit.*, p. 84.

writing. The reverse would, of course, be true of the right-eyed person.

On the relation of eye-dominance to general and special reading defects considerable data have been secured. The studies in general show only a slight tendency for the pupils with left-eye dominance to be more susceptible to reading difficulty in general and to reversal errors in particular. It should be noted, however, that a large percentage of the representative pupils reveal left-eye dominance, and that a large proportion (about 35 to 37 per cent) of those showing a minimum or no tendency to make reversal errors show left-eye dominance. From these data it would appear that only a few of those cases showing left-eye dominance are likely to have reading difficulty in general or to develop a tendency to make reversal errors. Left-eye dominance may be considered, therefore, a minor source of difficulty.

Mixed Eye-and-Hand Dominance. Since right-handed writing is far more common than left, and left-eyedness is fairly frequent, it would be expected that a combination of left-eye and right-hand dominance would be more frequent than right-eye and left-hand dominance. Monroe found this to be the case among both control and reading problem cases. The problem cases, however, show a larger percentage of this mixed type, which is now called the "mixed dextrals." The percentage for the control group was 21 and for the reading-defect groups 35, 35, and 48, respectively.

Among the present writer's reversal and nonreversal cases, the percentages are 43 for the former and 35 for the latter, with two cases doubtful. In one case the pupil had no decided eye preference and in the other, no clear-cut hand dominance. If these two cases are included among the mixed, the percentages are identical. It would perhaps be fair not so to include them. In this case, it would appear that among the extreme reversals are found a slightly larger percentage of left-eye right-hand dominance. Other studies, on the whole, have shown a slightly greater amount of left-eye right-hand dominance among reading defects than among normal readers. Thus, while it appears that cases of the more common type of mixed eye-hand dominance are to be found only slightly more fre-

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quently among those most subject to reversal errors than among those relatively free of this tendency, it does appear that these mixed dextrals are considerably more numerous among clinical reading cases.

The "mixed sinistrals" or left-handed right-eyed cases appear relatively infrequently, and in Monroe's groups occur more often among the normal readers than among the reading defects. The percentage for the former is 6 and for three groups of the latter, 3, 3, and 2, respectively. In the present writer's twenty-six cases of extreme reversals there was one mixed sinistral and the same number among the nonreversals with one case of mixed-handedness combined with right-eye dominance. This type of mixture is thus neither frequent nor significant in relation to reading difficulty.

Lack of Brain Dominance. For several decades, the cause of general reading disability and the causes of specific types of difficulties, including inappropriate forms of perception, have been sought in the construction of the brain. The older conceptions of "congenital alexia," "word-blindness," and the like were based on the assumption that deficiencies in the brain produced difficulties in learning words or total inability to learn them. More recently several theories of reading difficulty have been based upon assumptions concerning conflict of impression made upon the two hemispheres of the brain or lack of, or confusion in, cerebral dominance. The following quotation from an article by Orton is typical.¹

. . . The first level serves to give awareness that a visual sensation comes from without and is not a recalled memory of things seen; in psychological terms, this level furnishes the element of external awareness in sensation. This function, without much question, resides in the area striata or calcarine cortex of the occipital lobes. The second level, that of objective memories, serves as the storehouse for visual impressions of objects which have been seen. This function probably resides in the second type of occipital cortex which surrounds the calcarine or striate area. Up to this point the two hemispheres of the brain apparently work in unison to produce a single conscious impression; *i.e.* the messages relayed from the eyes

¹ Orton, S. T., "Specific Reading Disability—Strephosymbolia," *Journal of the American Medical Association*, April 7, 1928, pp 1095-1099

to the two sides of the brain are fused so as to give only one impression. This is brought into relief by the fact that neither of these functions is entirely lost as a result of the destruction of either hemisphere; a bilateral lesion is required to suppress the function of either the first or the second visual platforms. At the third or associative level, however, destruction in one hemisphere may result in complete loss of the associative function, resulting in inability to read (acquired word blindness), while destruction of exactly the same area in the opposite hemisphere will not give rise to any symptoms whatever. That hemisphere in which destruction produces loss of the associative function is called the dominant hemisphere, and may be either the left or the right, according to the side which habitually initiates the motor responses of the individual. In other words, it is obvious that the visual records of one side only are used in symbolic association and those of the other are elided or inactive in this process.

Structurally, however, there is no such contrast between the two hemispheres. The nondominant associative area is as well developed in size and complexity as is the dominant, and current neurologic belief (neuro-biotaxis) would imply that this silent or inactive area must have been irradiated equally with the active to produce an equal growth. Such an irradiation, moreover, would presumably leave behind it some record in the cells of the nondominant side which one may call an *engram*. The engram in the nondominant side would be opposite in *sing*, however, from that of the dominant; *i.e.* it would form a mirrored or antitropic pattern. Under usual circumstances only one of these reciprocally paired engrams operates in association with the concept in reading, as is shown by the facts of acquired word blindness already cited, and its antitropic or mirrored mate is elided or remains inoperative. If, however, the physiologic habit of complete elision of these engrams of the non-dominant hemisphere were not established, their persistence might readily serve to explain the failure to differentiate between *p* and *q* and between *was* and *saw*, and also to account for facility in mirror reading and mirror writing, and thus to explain those confusions of direction which have been extensively recorded in the literature and which as here described seemed to characterize all the cases of my own series. Since this conception of the disability as a physiologic variant differs so widely from the pathologic moment known to result in acquired word blindness, I have felt that the use of the term congenital word blindness was misleading and have offered the term strephosymbolia—twisted symbols—to demarcate better the series of cases showing this typical symptomatology.

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It should be recognized that this type of theory is extremely speculative. The function of the brain is not well enough known in these respects to give the theory positive support. The conceptions of some authorities in neurology, indeed, are not in harmony with the hypothesis. The idea of word recognition being due to impressions stored up as copies or images or as engrams literally etched in one hemisphere in one form and in the other in mirrored form is unacceptable to most psychologists. Finally, data gathered on the frequency of cases showing lack of hand dominance—suggested by Orton as a test of brain dominance—do not confirm the theory.¹

Summary. To summarize the discussion, it may be said that deficiencies in the perceptual attack which result in confusions, reversal, and other errors and which may interfere seriously with reading and learning to read may be produced by:

1. The transfer to reading of habits of studying and recognizing other objects except when the habits are countered by adequate guidance in the left-to-right progression.
2. The introduction of too many new words in the initial stages of reading.
3. Overemphasis upon the endings of words in teaching word analysis at the early stages.

In addition to these causes, which may be corrected by use of better materials and methods of instruction, are to be found certain constitutional factors which may predispose the pupil toward the formation of inappropriate techniques. These are as follows:

1. Various visual defects which result in vague images, eye-muscle imbalance, and alternating vision are quite certainly genuine factors.
2. Left-handedness, left-eyedness, and mixed eye and hand dominance are possible but doubtful, and at most slightly influential factors.

The idea that confused brain dominance or lack of dominance should be the cause of such reading difficulties was considered too speculative to be serviceable.

¹ See references to sections above on hand dominance.

Method of Diagnosis

Several methods of diagnosing the procedures used in reading a line or perceiving a single word are employed. They are as follows:

1. The use of photographic records of eye movements.
2. The direct observation of the pupil's eyes during reading or word study.
3. The observation of the pupil's oral responses in reading a sentence or recognizing and pronouncing isolated words.
4. An analysis of the errors in pronunciation made during the reading of a sentence or of isolated words and in reading specially constructed paragraphs and isolated word material and the comparison of types of errors with norms or standards.
5. Confusions of letters with each other.

Photographing Eye Movements. A commercial apparatus, the Ophthalm-o-graph, enables one to determine the eye movements involved in the process of reading a line of print or studying an unfamiliar word. This apparatus photographs a ray of light reflected from the cornea of the eye in such a way as to parallel the actual movements of the eye in reading. The result is a staircaselike figure in which the number and duration of the eye movements is fairly clearly indicated. This apparatus typically shows quite clearly the number of stops in reading a line and roughly the points at which the stops are made. It is, therefore, useful for determining how the pupil progresses across the line. It is less clear cut and reliable in indicating the character of the eye movements in studying a particular word. Inasmuch as the initial cost of the instrument and the operating expenses are considerable, this device is primarily of service in well-equipped clinics or laboratories for studying rather extreme or unusual cases. The present writer believes that in ordinary diagnosis most of the desirable information concerning the techniques of studying or perceiving words may be secured more quickly, less expensively, and often as well or better by the use of simpler methods.

Observation of the Pupil's Eyes During Reading or Word Study. Several methods, such as the Miles Peep-hole technique and other

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techniques of observing the pupil's eye movements by looking directly into his eyes while he is reading a line or studying an unfamiliar word are in common use. These are described in Appendix 2. They require no special apparatus, or, at the most, very inexpensive material, but demand considerable practice on the part of the examiner. One must learn how to see the movements of the eyes and this requires specialized experience, much as considerable practice is required to learn to see things clearly through a microscope. Most teachers learn to use the device fairly well, some very expertly, while others seem not to learn to get very clear impressions.

Observing the Pupil's Oral Responses in Reading or Perceiving Words. One can judge quite well the types of perceptual techniques employed in reading a line or studying unfamiliar words during oral testing. For example, how well the pupil progresses along the line may be indicated by his success in following typical paragraph material. Rapid, smooth, well-expressed oral renditions typically indicate efficient underlying habits. Indications of the methods employed in studying unfamiliar words are given when, during the reading of connected prose or of a list of isolated words, the pupil encounters forms which are unfamiliar to him. The length of time that the pupil hesitates on the word and the character of the mistakes in word recognition are usually indicative of the methods employed. The pupil who makes a large number of reversal or semireversal errors is probably one who on encountering difficulty is likely, at least on occasions, to break away from the consistent left to right observation of the word form. The difficulty with this method without other safeguards is that one lacks a standard of comparison. As noted above, all children make occasional reversal and almost every other kind of error in word recognition. The question is how frequent such errors must be before they should be regarded as representing anything other than typical immaturity. For this reason the author has prepared some special diagnostic materials which have been applied to a considerable number of representative children in order to determine the frequency of each type of error.

Standardized Diagnostic Tests, Based upon Errors Made in Reading Especially Constructed Paragraphs and Isolated Words. The *Gates Diagnostic Tests* include two objective tests for use in determining the extent and character of the pupil's difficulties in maintaining the consistent left-to-right order of observing words. The first test is based upon the first four paragraphs of the *Gates Oral Reading Test*. In the first four paragraphs in the *Gates Oral Reading Test* are included a relatively large number of words which when observed in reverse order or in partially reverse order give a series of letters which make up a real and usually a familiar word. For example: *dog (God), was (saw), no (on), rat (tar), even (never, envy), star (rats, arts), now (own, won)*. After the Oral Reading Test has been given the errors jotted down by the examiner are classified into the following groups: (a) full reversals—*was* for *saw*; (b) incorrect order of parts, such as *envy* for *even*, *arts* for *star*, *aws* for *saw*; (c) total words showing incorrect order—the sum of groups *a* and *b* above.

All the above errors show some type of incorrect order of the arrangement of the letters, syllables, or other word parts. The words are also classified into four groups in which the order of the parts is correct but in which one or more of the parts is wrong, as follows: (a) wrong only in the beginning, as when the pupil gives *stove* for *drove*; (b) wrong in the middle only, such as *bad* for *head*; (c) wrong at the end only, as, for example, *stop* for *star*; (d) wrong in two or more parts, as, for example, *biting* for *better*.

The total number of errors or mispronunciations of each of these types is determined and the relative frequency of each, in the case of the subject, is compared with the relative frequency of the same errors made by a large number of children. In other words, the errors of the child being examined are compared with those shown in the table of norms. For example, suppose the child makes twenty errors, that is, mispronunciations of words. In the case of the average child making twenty errors, one error will be a reversal, and no partial reversals will appear. That is to say, for a pupil with this degree of word-recognition ability there will on the average be one reversal error in every twenty word-pronuncia-

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tion errors made on this test. Table VI, Appendix, Part II, shows that a pupil making about four errors is rather unusually susceptible to the mixing up of parts of words. If he makes two errors he is very close to the normal. If he makes three he is getting a little close to the marked reversal tendency. If he makes seven or eight he is decidedly subject to this type of mistake. This test thus provides a means of determining the significance of the pupil's tendency to observe words in irregular order during the process of reading. It should be noted, of course, that the frequency of such errors would be less in typical reading matter for the reason that a relatively large number of words which make genuine words when seen in reverse or in partial reverse were included in the paragraphs in the test.

The second test is the Reversals Test. It consists of a list of thirty words all of which, when observed in reverse order, make a real word, or which give a word that is very similar to a real word, for example, the word *team*, seen in reverse is *maet*, which closely resembles *meat* or *meet*.

This test is given by asking the pupil to look at the words and pronounce them exactly as he did in the untimed Word Recognition Test. The percentage of the total errors which are reversals or partial reversals—that is, which represent the parts of the word in incorrect order—is then computed and interpreted by means of a table. The table itself is worth studying since it indicates the tendency of pupils of different levels of reading ability to make reversal and semireversal errors on these words. When the pupil's reading ability corresponds to that of the average child at the middle of the first grade he will make approximately one reversal error out of every five total errors. When his reading ability reaches that of the average pupil at the middle of the second grade, 15 per cent of errors will be of this type. When his reading rises to a grade score of 3.5, 8 per cent of his errors on this test will show an incorrect order of parts. The errors taper off from that point very rapidly; when the pupil reaches a grade reading level of 3.8 such an error will appear only about once in one hundred.

It takes some years of experience before the pupil is entirely free

from a tendency to make reversal errors. This fact should be kept in mind since teachers now and then seem to assume that making a reversal error at any time or place is a serious matter. Actually several errors are quite typical of the early stages and occasional errors of the type will persist for a long time.

The analysis based on the Oral Reading Test shows the child's tendency to make errors while reading sentences for the thought and the Reversals Test shows the tendency in studying isolated words. If the tendency is very strong it is likely to show itself in the relatively large frequency with which the errors are made in both tests. They are, of course, less likely to be made in reading a text since the meaning clues result in eliminating many that otherwise would be made. It should be remembered, however, that the interpretations are based on comparisons of the individual child's tendency to make errors both in reading text and in studying the isolated word in comparison with typical or average children. Some pupils are relatively more prone to the error in one situation than in the other. If it appears in both in pronounced form it is a more certain indication of a marked tendency than when it appears in only one.

Confusions of Letters with Each Other. It is believed by many persons that the mistaking of *b* for *d*, *p* for *q*, *b* for *h*, represents the same type of reversal tendency or improper directional orientation or confusion as do mistaking *was* for *saw*, or *now* for *own*. Relatively few studies have been made on this point. Some data gathered by the present writer, as yet unpublished, indicate that the assumption is unsound. Such letters as *b* and *d* are samples of the types of items which children readily confuse. These two items, for example, are quite or nearly identical in absolute shape. Twist a *b* around and you have a *d*. Other confusions are similar. Push a *d* around crosswise and you get a *p*. Twist the *p* to the left and you have a close approximation to a *q*. The differences between such letters depend not upon the item's shape in and of itself but rather its relation to the other items in the field of view. Hildreth¹

¹ Hildreth, Gertrude, "The Success of Young Children in Number and Letter Construction," *Child Development*, March, 1932, pp. 1-14

Teaching and Remedial Methods

and others have shown that pupils in their first experiences with such figures almost without exception disregard the relation of the object to the field of view. They learn the shape of the letter and are relatively little concerned whether it faces right or left or whether it is right or wrong side up. These errors, then, are due to the identity of the items themselves and are to be expected with considerable frequency until the pupil has had much experience in dealing with them.

The evidence gathered by the writer, admittedly not entirely conclusive, is that there is no close relationship between the pupil's tendency to confuse these letters with each other and his failure to maintain a constant right-to-left orientation in observing words. In the initial stages of reading both errors will be found relatively frequently but they are not necessarily related in any way except that both are the result of lack of experience.

As pointed out in the preceding chapter, the diagnostic program includes tests of recognition of the letters both in lower-case and in capital form. It is sometimes important to know what letters a child can recognize without errors and what ones are confused or cannot be identified at all. The letter-naming tests are introduced for that purpose alone and not on the assumption that such confusions as *b* and *d*, for example, present evidence of some deep-seated tendency to make reversal errors or to become disoriented in reading.

Teaching and Remedial Methods

In this section we shall suggest a number of methods of developing the habit of observing words consistently from left to right. In general, the best remedial instruction is simply the best classroom methods used with unusual care and intensity, and with very exact adjustment to the needs of the individual. We will, however, mention certain rather extreme devices that have been proposed and that may be used in cases which present very unusual difficulty.

Teaching the Concepts Left and Right and Giving Experience in Observing Materials Other than Words in the Left-to-Right Sequence. In Chap. 6, on the prereading program, a series of experiences designed to give the pupil an understanding of the basal concepts right and left, familiarity with the arrangement of materials on a printed page, especially in following picture and other sequences in the left-to-right direction, and demonstrations of the way the teacher moves her eyes across a line of print or across an individual word when she reads, were offered. In the case of a pupil who has special difficulty additional work of these types should be provided.

Demonstration and Explanation by the Teacher of the Left-to-Right Progression along the Line. The teacher should gather together in small groups those pupils who have special difficulty in the directional orientation and give them full and careful demonstration of the way she reads a line of print. She may slide the finger or a pointer along the line of material printed on a page, a chart, or written on a blackboard. She should explain the procedure and emphasize it frequently with unusual care. It is especially important to urge the pupils to follow her finger or the pointer. It may be advisable to begin with a single line. After considerable demonstration has been given, a second line may be added. A larger space than usual should be left between the lines, and the words in the line may be printed farther apart than usual.

Demonstration of Methods of Studying Individual Words from Left to Right. It is much easier to show the child how to follow a line of printed words than to make clear to him how the eye should move across the word from left to right. Words should be put on the blackboard or chart and the teacher should use her finger or a pointer to sweep under the word as she reads it. She should explain the need of working directly across the word from left to right, jumping quickly back to the beginning of the word, and progressing across it in the right direction when a restudy is needed. She should then show them how to follow the line of printed words and on encountering an unfamiliar one how to stop, observe the word from left to right, jump back to the beginning, and proceed rightward

again. It may be advisable to show the advantages of attempting to read the words that follow immediately after the one offering difficulty and of rereading the line as a whole as a means of making the fullest possible use of the context clues. She may need to repeat many times the demonstration of looking across words in the rightward direction.

The Use of the Finger and Other Devices for Observing the Words Properly in Book Reading.

Similar demonstrations should be repeated with easy material printed in the book and read at the ordinary reading distance. It is always possible that a child will observe the words correctly on the blackboard or bulletin board but adopt another device in reading the smaller words in the book. The teacher should show the child how she reads the line and observes a word by employing her finger or a pointer to move smoothly along the line as she reads. She should indicate with a pencil how she moves over a particular word, jumps back to the beginning, and repeats the process.

The child who is having special difficulty may be told to use his finger or a pointer as he himself follows the line and observes a word. While this is a "crutch," it may serve a useful purpose without being prolonged so greatly as to establish a habit of depending upon the moving finger or pointer. The purpose of the device is to start the habit of observing the words in the right direction. Once the pupil begins to use the technique, dependence upon the finger or liner can gradually be dropped without disadvantageous results.

It should be understood, however, that merely permitting the beginner to use the finger or a pointer to keep place may, of itself, be of no service. The finger may be moving inconsistently from right to left as well as properly. The finger may halt while the eyes move over a word or a phrase in any order. In other words, mere formal or careless instruction in the use of the hand and eye may be of no value at all. In some cases the use of the finger may merely complicate and interfere with the primary purpose of establishing consistent left-to-right eye movement. The value of the use of the finger or a pointer lies in the fact that it is easier to demonstrate a finger movement than eye movement and that once

the idea is caught the finger may guide the eye if the eye and hand have learned to function together.

Alphabetizing Words and Making a Dictionary. A useful means of helping pupils adopt the proper left to right attack on words is that of providing experiences in alphabetizing words. Even in the initial stage of reading, words which have been introduced may be classified according to the initial letter, as suggested in the preceding chapter.

This exercise is valuable because it focuses attention on the beginning of the word and tends to produce discrimination in the left-to-right order. Words, of course, must be alphabetized on the basis of the second or third letter as well as the first, as the child acquires facility. The words arranged in groups in the dictionary may be reviewed from time to time. Words may also be sorted into alphabetical groups for the fun of it.

Writing Words. When writing is introduced the pupil is given a very useful device in maintaining the correct orientation in words. When one writes a word one must begin on the left side and progress across it in the rightward direction. Failure to do this results in the most conspicuous errors, such as reversed writing or mirror writing. If this tendency appears it can usually be easily corrected by instructing the child to begin his writing at the extreme left-hand side of the paper or section of the blackboard. Since he cannot go leftward he will find it easy to proceed in the other direction. Handwriting is of course typically not introduced so early as the initial stage of reading and it is therefore, under ordinary circumstances, not available at the period when the need for guidance in the observation of words is most critical. A number of reading specialists introduce writing at once when they encounter serious difficulty in achieving the consistent rightward orientation of words. They introduce cursive or manuscript writing, whichever is going to be employed in the grade. There is little doubt that, successfully motivated and taught, the experience of writing is very useful in establishing the habit of moving over words from left to right.

If writing is introduced as a preventive or curative measure care

must be exercised to combine demonstration and instruction in observing words under all conditions. If this is not done it is possible for a child to set up one set of habits for writing, in which the right direction is maintained, but to use an entirely different set, namely that of looking over the word in irregular order, in ordinary reading or word study. The teacher must give patient and continuous instruction in looking over words in the same direction as one writes words.

Introducing writing much earlier than would ordinarily be done should be considered as an emergency measure to be used only when other methods fail to produce the desired habits. An exception, of course, may be made where the pupil's motor coordination and interest in writing seem to be unusually well advanced. If a child seriously wants to write at the time reading is first introduced and apparently has the equipment to do so, it is desirable to meet his felt need. It is fortunate when such a need and ability appear in the case of a child who has had special difficulty in learning to recognize words.

The Tracing and the Tracing-Writing Methods. Some leading specialists have suggested various tracing devices instead of actual handwriting at the initial stage. Words either in script or manuscript or printed form are placed on cards or sheets of paper or other materials. In one method the word is given a rough surface by dusting fine sand over a word painted with mucilage. In others the words are made with a coarse thick paint with a brush. In others, a heavy crayon is used. The purpose in each case is to give a surface which the pupil can see and follow by feeling it under his fingers. The child is asked to look at the word and follow its form by tracing with the finger. In this way, without being required to write—which is a much more difficult process—a child gets experience in following the word from the left to the right.

These devices are effective means of giving the pupil experience in going through the word in the right direction. The defect of the plan is that the pupil in following his finger goes through a much more complex visual pattern than he would in merely observing the word from left to right. For example, he feels and sees

the movement all around an *o*, going backward as well as forward, in an *a* going up and down, and so on, as well as straight from left to right. In observing a word he would not go through these complications. However, tracing a word does provide a means of demonstrating the fact that words are made from left to right and of giving practice in starting at the left side and moving either simply or by complicated movements toward the right.

There is also some danger that the pupil will establish the habit of following the word from left to right when he is tracing but do something quite different when he is merely studying a word in an effort to recognize it. It is, therefore, very important that demonstration and instruction on the matter of studying words in the same order be combined with the experience in tracing words.

Fernald¹ has made extensive use of a procedure in which the child starts by tracing a word, learns gradually to write the word, and then to learn the word without either tracing or writing. In her procedure the word is written for the child with a crayola on paper in blackboard-size script or print. The child traces the word with finger contact, seeing each part of the word as he traces it. He repeats this as often as necessary until he can write the word without looking at the copy. He then writes the word on paper and later, after he has learned to write a number of words, he writes sentences or "stories."

After a considerable amount of experience with these two steps the child learns to write the word by studying it visually without the preliminary tracing stage. In stubborn cases the tracing stage may be kept up for a long time. In dealing with "extreme disability" Dr. Fernald states that "The average tracing period is about two months, with a range of from one to eight months."²

Fernald has had great success with this method even with the most stubborn cases. The main question about it is not whether it will work even in stubborn cases but whether it is necessary to

¹ Fernald, Grace M., *Remedial Techniques in Basal School Subjects*, McGraw-Hill Book Company, Inc., New York, 1943, Chap. 5.

² *Ibid.*, p. 41

adopt so laborious a procedure involving tracing and writing in the initial stages of reading some months before the child would otherwise undertake writing.

It is impossible to answer this question in general. The present writer believes, however, that other more rapid-moving devices may be successfully used in all but relatively few cases. It would seem advisable, therefore, to consider the writing method and the combination tracing-writing method of Fernald as a kind of last resort to be used only when the more expeditious procedures fail or when there is some definite reason for concluding that the tracing-writing is superior to others.

Tracing may be employed exclusively for the purpose of demonstrating the correct orientation and of getting the pupil into the habit of working across a word carefully from left to right. The tracing activity may be used only so long as needed to get the pupil started reasonably well, and then it may be dropped and the pupil allowed to continue by purely visual study. The author is inclined strongly to recommend, however, that even before using the tracing method in this manner the teacher should try to get the same results by means of guiding the pupil's eye over the word as she moves a pointer, followed by experiences in which the pupil leads his eye across the word by moving a pointer under it. This procedure contains most of the elements of actual tracing except, of course, the muscular experience, while eliminating the necessity of observing and tracing all the detailed features of the individual letters.

Printing and Typing. Another supplementary means of demonstrating the direction of attack upon words is that of showing the pupils how to print words quickly with rubber stamps and giving them experiences in printing words themselves. This procedure demonstrates the direction which must be followed from left to right in making up a word. It avoids the laborious work on details involved in the tracing and writing procedure. In the course of printing, however, the movement across the word is not a very fluent or continuous one. The typewriter has also been used even at a very early stage. In fact, in some schools the use of the type-

writer is introduced before handwriting. What the pupils appear to get in using the typewriter is a clear-cut notion of the order in which letters must be observed. What they do not get automatically is practical experience in actually moving the eyes from left to right in observing the word. They may type the word with the letters in the proper order but observe the finished word in a different order. Here again is a case in which the use of the device alone, unless it is carefully coupled with instruction concerning ways of observing words and practice in observing words by the same method, might be of little value.

Letter-by-Letter Phonetic Analysis. Several persons working with serious reading cases have recommended a procedure which depends primarily upon teaching first the sounds of the individual letters and then of blending and building up words from these letter sounds. Later, phonograms are introduced and combined with the use of letter sounds in constructing words. This is a program beginning with the sound elements and building up to total words. In some respects the procedure is similar to the writing method. The person works from the details to construct the total word, in one case by writing or tracing it and in the other by looking at the letters and giving their sounds.

This method provides practice in moving across the word consistently from left to right if the pupil is required to take the first letter, sound it, then the second, and so on. If he is given adequate instruction on which side to begin, he is not likely to depart from the procedure. It should demonstrate clearly and provide practice in the correct orientation. As in the case of writing and tracing, the question is whether this method is necessary. It will be noted that such a phonetic procedure introduced at the very initial stage conflicts in theory with the program of word analysis outlined in the preceding chapter at many points. It is a method which should be used only as a last resort in extreme cases when other methods more quick-moving and more harmonious with a rich total program of reading instruction have been tried.

Introduction of Instruction in Word Analysis. In the preceding chapter was outlined a program in which word-analysis activi-

ties are introduced in the earliest reading stages. From the beginning the pupil studies words with emphasis on the orientation in terms of whatever features he is able to perceive. Instruction in the word-analysis program can and should be handled in such a way as to promote the development of the proper orientation. It is desirable, for example, to begin always by noting the first part of the word and then proceeding across it. The first letter sounds to be mentioned should be those found as the first letter of the word, and similarly emphasis in the initial stages should be placed on the first phonogram or syllable or other word part. Even at the stage when pupils are unable to recognize, name, or sound any letters or combinations of letters the visual analysis, featuring first the beginning part and then moving across to the end of the word, may be carried out. In other words, a well-conducted program in word analysis should be a highly effective means of establishing firmly the habit of observing words invariably in the rightward direction. A skillful teacher can accomplish as much in the normal course of her word-analysis activities as can be achieved by the more elaborate tracing, writing, and detailed letter-sounding and other devices.

Demonstration of Errors. It is usually of value in discussing the methods of attacking words to show children what happens when word parts are taken up in any order except the rightward one. For example, the teacher may present the word *was* and then the word *saw*, and show how the latter is made up of the same letters as the former in the reverse order. If the pupils know the letters she can show the word *was* and have them look at this word and say the letters in reverse order while she writes them underneath the word. They at once see what a difference it makes to look at the word in the reverse order. She can show what happens also when they first look at the middle letter, then the first, then the last.

An exercise of this type must be handled with very great care, especially at the early stage in reading, since there is some danger that children may be induced to look over words in the reverse order, perhaps just for the fun of it. There is always a possibility, too, of introducing to the children who are having difficulty a certain anxiety lest gross errors of this sort be made. A child might, for exam-

ple, get the habit of looking at the word one way, saying it, and looking at it the other way just to check up.

It is possible to compare such words as *was* and *saw* by placing them together for observation from left to right without calling into play the reverse eye movement at all. In this case they are merely studying the similarities and differences of the two words. Exercises may be made up with reversible or nearly reversible words in which they are included in context, as, for example, "The boy *was* a cat. The boy *saw* a cat." In these cases the context or an illustration of some other means should be provided to enable the pupil to tell which is the correct one, if it is not obvious, as in the above pairs of sentences. In these cases, words made up by the reversal of letters or of syllables may be compared without the necessity of observing any word in the reverse order.

Other Devices. A number of mechanical devices have been proposed to assist the pupil in acquiring the proper orientation in studying words. It has long been obvious that the motion picture could be developed in which some type of moving object could be used to guide the eye along the line of printed material shown on the screen. Visual aids to lead the eye from left to right across a word could also be devised. The use of sound in connection with the picture might be helpful. Thus the parts of the words could be spoken or sounded as the pointer or moving object moves over the word, or as the parts of the word appear in sequence. Demonstration lessons on methods of attacking words could also be developed. Some devices of this type have been prepared by Dearborn and his colleagues in the Harvard Films.¹ Mechanical devices could also be developed for seatwork. Words could be printed on strips and exposed part by part by the use of mechanical control. The Metronoscope is a device which exposes parts of a sentence, each part typically consisting of a phrase or two or three words in order from left to right. A similar apparatus could be devised to present the parts of the words one at a time.

It is doubtful that any of the elaborate mechanical devices now

¹ Dearborn, W. F., I. H. Anderson, and J. R. Brewer, "Controlled Reading by Means of a Motion Picture Technique," *Psychological Record*, 1938, pp. 219-222.

References

available are sufficiently useful and sufficiently necessary to justify the cost. It is a rare child, indeed, whose directional orientation cannot be straightened out by careful instruction involving no expensive or unusual material. The mechanical devices now available provide a limited amount of material unlikely to be well integrated with the program in any particular class, or to be easily adapted to the precise degree of advancement of the particular subject. All such devices are to be regarded as last resorts, to be used only when all other methods fail, and even then only after the most critical appraisal of their particular merits and defects.

References

Most of the books listed in Appendix 1, Part A, deal with this topic.

Exercises

1. Why should the study of the initial sounds of letters precede the study of word endings in the reading program?
2. Why is prolonged inspection of new words inadvisable for beginning readers? What are some possible factors contributing to such prolonged study?
3. What is the author's conclusion about the relationship between left-handedness and reading difficulty? The relationship of eye-dominance to reading defect?
4. What is a "mixed dextral"? A "mixed sinistral"? What is the probable influence of mixed hand-and-eye dominance in reading defect? Of "brain dominance"?
5. In what ways may eye-movement habits be observed? Which methods are most practical for the teacher? Discuss the way in which the *Gates Oral Reading Test* makes it possible to diagnose a child's eye-movement habits. How do the norms of the *Gates Reversals Test* contribute to a knowledge of the development of eye-movement habits in children's reading?
6. What importance should be given to a child's making reversals in the first grade? What is the probable cause of confusing letters of similar shape such as *p* and *q*, *b* and *d*?

Development of the Left-to-Right Direction

7. What is the essential difference between remedial and classroom methods of teaching reading? Which is more effective in teaching directional habits, discussion or demonstration? Discuss the use of the finger or pointer as a device to be used by beginning readers.
8. Describe several devices for focusing attention on the beginnings of words. Discuss the dangers of writing as a remedial device. What is the value of tracing as a remedial reading method? What is its weakness? Discuss briefly the use of printing and typing as methods of demonstrating left-to-right attack on words.
9. Under what conditions should letter-by-letter phonetic analysis be used? What problem do you think it might raise for children already suffering from reading defect?
10. How may word analysis be used in the typical reading program to stress left-to-right habits of word observation? What are the values and dangers of demonstrating errors in word observation to young readers?

chapter II Diagnosis and Development
 of Ability to Read
 by Thought Units

In the beginning stages of reading the typical child reads one word at a time. Photographs of eye movements show that in the early stages the pupil fixates his eyes on each word and if the recognition is achieved at a single fixation he moves to the next word, and so on. Often the child will make several fixations of a single word as he puzzles it out. The child's oral reading in the beginning stages is typically word-by-word reading.

The Physical Basis of Perception of Thought Units

Gradually the pupil learns to recognize oft-repeated words with increasing speed and ease. For some time he will, however, read only one word at a time although the pause on each single word is a short one. Sooner or later the child succeeds in recognizing a pair of

Development of Ability to Read by Thought Units

words; typically, a pair that has frequently gone together, and which make up a thought unit, such as "a boy," "the dog." As his experience in reading is extended, the number of pairs of words he can recognize at once increases, and sooner or later he may succeed in recognizing phrases or thought units containing three or even more than three words.

In the retina of each eye is a structure called the *fovea centralis*. Images from the field of vision cast upon this area are seen with greater clearness and precision than surrounding items. If a page of a book is held at the ordinary reading distance, an area which we may call the "eyefull," about an inch and a quarter or an inch and a half long horizontally and about one inch high or vertically, will fall upon the area in the retina which provides the clearest vision. This area varies somewhat from person to person and is roughly oval in shape. In the average case the area providing clearest vision is large enough to include two or more words. Items outside of this area, however, are actually seen although less clearly. In the case of an experienced reader, vision outside of the area is apparently clear enough to enable him to detect clues which permit word recognition. In the earlier stages of reading, when the child needs to see words clearly, these clues are usually seen insufficiently to permit word recognition. However, the pupil will often see more than one word in the area of clear vision. And he is, therefore, able to recognize them both at a glance if his skill in word recognition is sufficiently advanced.

Growth of Ability to Read by Thought Units

In developing the present reading diagnostic program the author gave a test of ability to perceive words comprising phrases or thought units to a large number of children to determine the abilities shown by the average child at different grade positions. This test consisted of twenty-six phrases. The first twelve consisted of two words each beginning with such an easy one as *a boy* and ending up with such combinations as *come back*, *ride fast*. Following these were ten phrases consisting of three words beginning with one

such as *a little cat* and including more difficult ones, such as *bring your books*. The last four consist of four words each, such as *wait for a car* and *park your car here*. This test is the Phrase Perception Test in the *Gates Diagnostic Tests*. It appears on page 4 of the booklet of tests and full directions for using it are given in Appendix 2.

The phrases are printed in columns in typical school-reader textbook type. Beginning with the easiest, the phrases are exposed one at a time by moving a card along which reveals the phrase in a window for one-fifth of a second. A child would be rarely able to fixate more than once in this time. As soon as the phrase is removed from sight the child reports what he read.

The actual development of this ability from the beginning stages through the sixth grade, as reported by the average scores of the population tested, is indicated in the table of norms for this test. This is Table XI, in Appendix 2.

The average child is unable to recognize any of the phrases prior to the middle of the first grade. At about this time the average child gets one phrase right out of the twenty-six. By the beginning of the second grade the average child gets four or five. They are almost always two-word phrases. The average child, in other words, can read about one-half of the twelve two-word phrases and none of the more difficult ones. The child gets twelve of the items correct at about the time he reaches the end of the second grade. The ones he gets then are mainly the two-word phrases but he may get one or two of the simplest three-letter units. During the third grade he begins to achieve success on most of the simplest two-word phrases and a few of the easier three-word units. He progresses very rapidly during the third grade. By the time the average child reaches the beginning of the fourth grade his score is twenty-three correct out of the total twenty-six. This means that he must get all or practically all the two- or three-letter phrases and at least one of the four-letter units. The four-letter units are very difficult and the average child is able to deal with them fairly well by the middle of the sixth grade. His score at this time is twenty-five out of the twenty-six items. Progress after the beginning of the third grade is relatively more rapid than the figures indicate for the reason that the items them-

selves from Number 12 on become, on the whole, increasingly long and difficult.

The ability to recognize more than one word at a glance, especially words forming thought units, is an important technique in reading. It saves a great deal of eye work. When the pupil can recognize phrases of two or three words at one glance he does what was formerly achieved only by two or three or more fixations. Ability to read by thought units is essential for increasing the speed of reading. This ability also makes it possible to develop the eye-perception or the eye-voice "span," that is, ability to perceive words and get more or less of their meaning beyond the point at which one is actually reading aloud or actually thinking in silent reading. The meaning of the word which he is pronouncing in oral reading or fully recognizing in silent reading is enriched by the significance of what is further ahead. The ability to read by thought units enables the pupil to recognize and express his material better. He senses the meaning of the sentence as a whole more fully as he progresses through it and is thus able to give the material more effective expression in oral reading.

The sketch of the development of ability to read by thought units given above is based on the progress of the average pupil. Children vary quite widely in the rate at which they develop this skill. Some will be found who are very proficient in reading by thought units before the end of the first grade; others reach considerable degrees of skill during the second year. The average child, as indicated above, makes the most marked progress during the third year. Some children are slower. A few will be discovered who during the third year are still unable to recognize many thought units in their normal reading, and those recognized will be small and very familiar phrases.

In general the demands upon reading in the typical school correspond closely to the course of development of ability to read by thought units shown by the average child. During the first and second year the typical schoolroom demands upon reading can usually be met by reading at the rate of ordinary conversation or even a little more slowly. In other words, the reading assignments are not

How Ability to Read by Thought Units Is Acquired

so large as to require very rapid reading, and the occasions are few when an average pupil will suffer seriously because materials on the blackboard or in a book are taken away before he has had time to finish them.

During the third grade, in the typical school, the amount of reading required increases and the demands for reading at a rather high speaking rate, or even more rapidly, occur with increasing frequency. In the latter part of the third grade and in the fourth and later grades the typical school program and other situations, too, present a need for reading at a more rapid pace than can easily be achieved on a word-by-word basis. In other words, to meet typical demands the pupil should be fairly well advanced in reading by thought units when he enters the fourth grade.

How Ability to Read by Thought Units Is Acquired

The ability to read by thought units comes as a natural result of gradually increasing efficiency in recognizing single words. In the early stages the child may need to take several glances at one word. Gradually he learns to see it by one look, but he may need to see it rather fully and clearly. He still cannot recognize it by very superficial or fragmentary clues. Gradually he learns to get the word on the basis of increasingly superficial observation with very rare errors. It is this ability to recognize words on the basis of increasingly subtle and incomplete clues that enables the pupil to recognize two or even more words at one fixation.

It is rarely possible for a child to recognize several words in thought units at one glance until his recognition of individual words is well advanced; until it is very easy, quick, and accurate. Efforts to force the pupil to recognize two or more words at a glance before recognition of single words is sufficiently mature will be likely to result not only in a failure but in interference with the course of development of single-word recognition. While it is advisable for a teacher to be alert to see the signs of progress in recognizing words by thought units in Grades 1 and 2, it is not advisable to begin definite remedial instruction too early lest the pupil be forced to

adopt methods which are detrimental both to word recognition and phrase perception. The third grade is a rather critical period. If the pupil is lagging markedly in recognizing words by thought units in the early part of the third grade, he should be given careful attention. Before any intensive program of remedial instruction is introduced, however, the teacher should survey the pupil's reading vocabulary and especially his techniques of word perception. Ordinary classroom instruction, and especially remedial work, must be designed to develop recognition of individual words to a sufficient degree to make possible the perception of larger units before any extraordinary measures are taken to secure proficiency in reading by thought units.

Informal Methods of Diagnosing Ability to Read by Thought Units

Typical Symptoms of Backwardness in Reading by Thought Units. Children who are not making satisfactory progress in learning to read by thought units will usually show several difficulties in their ordinary classroom work.

1. *They will be reading one word at a time in silent and oral reading.* As pointed out above, this will be true of most children during the first two grades. The child whose oral reading, for example, shows more evidence of reading word by word exclusively than the average child may be suspected of lagging in the development of skill in recognizing words by thought units.
2. *They are likely to read orally with inferior phrasing and expression.* A child who reads but one word at a time is unable to get as full and as clear a notion of the meaning of a sentence as a whole as the one who can read by thought units and his oral rendition is likely to be less expressive. The mere fact that a child is learning to read by thought units means that he is organizing the material more effectively. If he were organizing it poorly, his attempts to see two or more words would be much less successful and his progress would be retarded. If a child is developing effectively in the technique of perceiving words in thought

units he is practically certain to be doing good work in the comprehension and organization of the material.

3. *Pupils failing to make satisfactory progress in reading by thought units are likely to be slow readers.* When a person speaks, his materials are not organized in a string of unrelated single words. Ideas come to him as ideas, that is, as thought units which are then converted into organized spoken units. The child who reads only a word at a time will only in rare instances be able to read rapidly. He may push his speed up to a modest speaking level, but he is unlikely to exceed this rate much, if any. Thus a child who is unable to read by thought units is very unlikely to be able to read more rapidly than a moderate speaking rate.

During the latter part of the second and the early part of the third grade, the teacher should be alert to detect those pupils who read word by word and whose phrasing and expression in oral reading is poor. They should be alert for evidence of difficulties in comprehension of the meaning which comes from failure to grasp the material in thought units and to organize it in phrases as they read. The child whose rate of reading comes to a standstill at some level below a rapid speaking rate should also be suspected. In other words, a good idea of the extent to which a child is learning to read by thought units can be secured by observation of his everyday activity.

Observation of Speed of Silent Reading. Further evidence, in many instances more definite data, concerning the pupil's ability to read by thought units can be secured by evaluation of his scores on silent reading tests. The teacher may note the grade scores obtained by pupils on the *Gates Basic Reading Tests* or the speed test in the *Gates Reading Survey*. These are tests in which the score represents the rate at which the pupil reads relatively easy material with a stipulated degree of comprehension. The pupil whose grade score in these tests is up to reasonable expectations may be regarded as probably maturing in skill in reading by thought units as rapidly as his abilities permit. If his score on these tests is below reasonable expectations—in the light of his intelligence, past experience, vision—he may be suspected of not developing ability to read by thought units as rapidly as is desirable.

Observation of Quality of Oral Reading. A study by Gates and Cason¹ shows that an appraisal of the pupil's oral reading, especially the quality of the phrasing and expression during oral reading, is a very good indication of the pupil's ability to read by thought units. This test was made by giving the pupil reasonably easy material—material containing relatively few unfamiliar words—and asking him to read it aloud. The teacher or examiner notes the character of expression; whether by inflection or emphasis, or by changes in the speed, he shows evidence of having organized the material in thought units. The teacher may mark off the places at which minor and major pauses are made and later glance over the paper to see how these divisions correspond to reasonable divisions of the thought. Pupils who read orally with phrasing and expression as well as could be expected or better very probably are making normal or better progress in recognition of thought units.

In general, then, evidence from observation of the pupil's performance and the study of records of silent reading and individual oral reading tests may often be secured which makes any further and more detailed diagnosis unnecessary. The pupil who is doing well in silent reading and in the phrasing and expression in oral reading will probably be one who need not be worried about. Where there is uncertainty or where there is positive evidence that the pupil is not doing as well as one can reasonably expect, further diagnosis is advisable.

Tests of Phrase Perception

An unusually large number of tests, observations, and devices are in use for determining the nature of a child's ability to read by thought units. They vary all the way from critical analysis of the pupil's performance in silent or oral reading, as indicated above, to the use of very elaborate technical instruments. In the remainder of this section will be offered a description of those tests included

¹ Gates, Arthur I., and Eloise C. Cason, "An Evaluation of Tests for Diagnosis of Ability to Read by Phrases or 'Thought Units'," *Elementary School Journal*, September, 1945, pp. 23-32.

Tests of Phrase Perception

in the *Gates Diagnostic Tests*, which will be sufficient for most cases, and appraisal of a number of the other tests and devices, some of which may be used for additional diagnostic work.

Use of the Gates Word Perception, Flash Presentation Test, and the Phrase Perception Test. Directions for administering these tests are given in the Appendix. The Word Perception Test, Flash Presentation, was discussed in Chap. 8 and the Phrase Perception Test was described in Chap. 3. It is advisable to give both of these tests and to compare the results in arriving at a diagnosis.

If the pupil's score in the Phrase Perception Test is up to his grade status or the grade equivalent of his score in an intelligence test or other similar test, the indication is that he is not seriously retarded in ability to recognize words by phrases. It is, of course, possible that a pupil's grade score on the phrase perception tests may be higher than his grade score on silent or oral reading tests. If this is the case, one may suspect that the difficulty in oral and silent reading arises primarily from some other source than sheer inability to perceive words in thought units. Other possibilities will be presented in later discussions of the improvement of silent and oral reading.

If, on the other hand, the pupil's grade score on the Phrase Perception Test is approximately the same as his score on the silent and oral reading tests there is a possibility, indeed a strong probability, that limitations in reading by thought units are restricting the pupil's development of speed and comprehension in silent and oral reading. If the pupil's score on the Phrase Perception Test is clearly lower than the grade score on silent and oral reading tests, it is highly probable that the pupil is retarded in the technique of recognizing words in thought units. In these cases, the next step to take is to compare the grade score in the Phrase Perception Test with the grade score in the Word Perception Flash Presentation of single words. If the pupil's grade score in the perception of words presented by the flash exposure is higher than his grade score in the Phrase Perception Test, the probability is that the pupil's difficulty in phrase perception is not mainly due to retardation in the perception of single words. If the pupil's score in the Word Perception Test, Flash Presentation, is about the same as or lower than his score

in the Phrase Perception Test, further consideration should be given to the child's whole technique of word perception. It is possible in this case that an advance in phrase perception would be difficult to secure without an improvement in the perception of single words. In such a case, some of the suggestions for quickening the perception of words in thought units to be given in the next section of this chapter may be employed with single words as well as with phrases. If the child is definitely retarded in the techniques of word recognition, remedial work should center more in that area, at least for a time, than on the perception of two or more words simultaneously.

If the pupil's grade scores in Word Perception, Flash Presentation Test; Word Perception, Untimed; in silent and oral reading, and in Phrase Perception, are all low in approximately the same degree, the suggestion is that the pupil is subject to a number of deficiencies. In such a case, the decision whether to introduce intensive training in quick perception of words and phrases will depend somewhat upon the general level of the pupil's performance in all these activities. If his average grade score in all these tests is 2.5 or lower, improvement should be sought in all phases of reading, and remedial work should not be too heavily concentrated on the perception of thought units, especially in artificial situations. In some instances marked benefits are secured by emphasizing reasonable situations in which quick recognition, both of words and phrases, is naturally called for. Suggestions for activities of this type will be made presently.

The above are the only tests provided in the *Gates Diagnostic Tests*. Other tests which may be used will be briefly described and appraised. Most of these tests have been studied and compared with each other under experimental conditions by Cason¹ and by Gates and Cason.²

¹ Cason, Eloise B, *Mechanical Methods for Increasing the Speed of Reading*, Teachers College Contributions to Education No. 875, Teachers College, Columbia University, New York, 1943

² Gates, Arthur I., and Eloise B. Cason: "An Evaluation of Tests for Diagnosis of Ability to Read by Phrases or 'Thought Units'," *Elementary School Journal*, September, 1945, pp. 23-32.

Tests of Phrase Perception

Phrase Reading Tests. A variety of tests may be made up from lists of phrases, such as those used in the *Gates Phrase Perception Test*. A column of such phrases may be typed or printed on a sheet of paper and placed before the pupil who is asked to read the phrases aloud as fast as he can. A time limit is set and the number of phrases correctly read during the period is noted. Instead of having the pupil indicate the accuracy of his reading by reading aloud, any one of several types of checks may be provided. For example, in the test used by Cason, the phrases were listed on the side of a sheet and another sheet containing an illustration was presented for study. The pupil first studies the picture, and when the test begins he underlines all those phrases which describe something in the picture and leaves the others unmarked. A story can be read and a similar series of phrases handed to the pupil who then checks those related to the story. Dependable pupils could be tested by asking them merely to read and understand the phrases as rapidly as they can and to mark the last one read when the time limit is reached.

These are really all tests of reading but the material is organized in such a way that the pupil who can read the phrases as units will do so more rapidly than the pupil who reads word by word.

Flash-Card Tests. Tests may be made by arranging a series of small cards on each of which is typed or printed a phrase beginning with short, easy ones and ending up with longer and harder ones. These may be flashed in the conventional way, one at a time, and the pupil asked to respond after each presentation. This test is substantially the same as the *Gates Phrase Perception Test*, except that instead of exposing the phrases through a slit in a card they are presented by flashing a card into and out of view. If desired, a test may be made up of flash cards in which words are printed in larger type.

Tachistoscopic Tests. Several types of tachistoscopes, or mechanical devices for flashing words or phrases or other items for a short period, were mentioned in Chap. 9. They may be used for determining a pupil's ability to recognize words and phrases in a single glance. These devices are more expensive and some of them provide fairly exact mechanical control, especially in the time during which an item is exposed.

Projection-Lantern Presentations. Words and phrases may be printed or typed on slides for use in a schoolroom projection lantern. The Flashmeter¹ is a device of this sort. It consists of a projection lantern equipped with a shutter similar to that used in an ordinary photographic camera which can be set for an exposure of a predetermined time beginning with a fraction of a second.

The Metronoscope Test. The Metronoscope, mentioned in Chap. 9, can be operated to expose at a fixed place, one phrase after another arranged in a column. When so used, it is substantially the equivalent of the tachistoscope. The Metronoscope is really a tachistoscope equipped with three exposure windows or apertures on a horizontal line. Thus the material may be organized into sentence form. The first phrase is exposed in the first opening, the second can then be presented beside it to the right, and finally the third. The apertures then all close, a new line is moved in, and it is, in turn, exposed in thirds. This machine may be used for a test of ability to read phrases presented in columns as in the tachistoscope or in a horizontal line either related or unrelated in meaning.

Observation of Eye Movements. Chapter 14 mentions several methods of observing the pupil's eye movements during reading, and Appendix 2 gives directions for methods of diagnosis by this means. The movements may be observed in a mirror or through a small hole pierced in a card which contains the test and which is held before the child's face at ordinary reading distance or by looking directly into the pupil's eye over the top of the book or sheet of paper. It takes considerable practice to learn to observe eye movements accurately but with experience it is possible to determine the number of stops the eye makes in reading a line. When the number of pauses can be accurately determined, good evidence is obtained concerning the ability to read by thought units. If the stops are fewer than the words on the line, it is quite certain that in some cases more than one word was obtained at a time.

Photographic Records of Eye Movements. The Ophthalmograph² is a device for photographing the movements of both eyes,

¹ See Chap. 9.

² Distributed by the American Optical Company.

Relative Values of Various Diagnostic Methods

yielding records similar to those shown and discussed in preceding chapters. Used by a skilled examiner these records give very definite and objective evidence of the character of the eye movements utilized in reading.

Relative Values of Various Diagnostic Methods

The studies by Cason, and Gates and Cason, referred to above produced considerable information concerned with the merits and limitations of these tests. On the basis of evidence obtained in these studies the simple presentation test included in the *Gates Reading Diagnostic* battery was given first choice although there were two or three other very similar types of tests which were about equally useful. They were chosen because they gave the highest correlation with the tests which revealed the character of phrase recognition in actual reading and because they were the simplest, most easily managed, and least expensive devices. The Phrase Perception Test seemed to reveal relatively reliably and accurately the extent to which a pupil actually reads by thought units under normal conditions. This test represents less marked departure from the typical reading situation and less artificiality. In taking the test, the pupil appears to be somewhat more likely to perform as he does in ordinary reading than when he is required to read phrases in a novel, especially an elaborate, mechanical setup.

The indications uncovered in this study were that when one introduces an artificial mechanical device one presents a problem of adjustment to that particular device. Some children make the adjustment more readily than others, but on the whole there are many instances in which the child's performance in responding to the mechanical device does not indicate his performance in an actual reading situation. In some instances, features of the mechanical operation are decidedly distracting. For example, in almost any group, even among adults, a number will be found who, although able to read excellently by thought units, even large ones, are completely baffled in their efforts to recognize phrases flashed by a projection lantern for one-fifth of a second. The author found one child who

invariably automatically closed his eyes when the flash appeared and before he got his eyes open the phrase had disappeared. Other children were found who were distracted by the noise and the number of moving parts in the Metronoscope, or/and in some of the tachistoscopes.

By the statements just made it is not intended to imply that the series of tests suggested above do not possess value in diagnostic work. The use of a series of flash cards in individual testing might well be made by an examiner in checking the results obtained by the *Gates Phrase Perception Test*. Another useful check could be secured by using silent or oral reading of a column of phrases printed or typed on a sheet of paper. In this case the situation is entirely natural and interfering operations are at a minimum. Skill in observing and rating the child's phrasing in oral reading is highly desirable. It is a type of test that can be employed informally at any time with various kinds of materials.

It is very useful to learn to count the number of stops per line by observing the pupil's eyes as he is engaged in reading some typical material. Experience in using the mirror and other devices for observing eye movements is recommended. Some of the tachistoscopic devices may also be used in supplementary work. In general, however, the author believes that the simple devices which present material at typical reading distances in typical reader type, and which introduce a minimum of mechanical distraction, as in the case of the Durrell Tachistoscope,¹ are to be preferred to the more complicated apparatus for diagnostic purposes.

In the study by Gates and Cason the Ophthalm-o-graph gave results rather surprisingly low in reliability and many children had considerable difficulty in reading in an ordinary manner in this test situation. These limitations can probably be removed by giving the child more experience in using the instrument before the actual test is conducted and by obtaining more than one record. The Ophthalm-o-graph record, of course, contains evidence on other matters, such as the character of the coordination of the eyes not secured by the simpler tests. It also reveals details of the eye move-

¹ Distributed by the World Book Company, Yonkers-on-Hudson, New York.

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ments, such as regressive movements, involved in the study of words, which cannot be observed by even the most experienced persons, by looking directly into the eyes.

In general, however, the simpler test, such as the Phrase Perception Test or the reading of phrases typed on sheets of paper, or the direct observation of the eye movements, give the best as well as yielding the quickest and least expensive results.

Two further considerations should be noted. The first is that a complex mechanical device which takes much of the examiner's time and attention to operate leaves him less free to reassure the subject and to observe his performance. The second is that even if the elaborate apparatus should yield greater diagnostic precision on certain points, such as the duration of the reading fixation, this information is not worth its cost unless it makes possible more helpful classroom or remedial instruction.

Instruction and Remedial Work

Ability in reading by thought units, like most other skills in reading, is best developed by the use of instructional materials and methods which give the widest and richest returns in ordinary classroom activity. Remedial instruction consists in using, as far as possible, the best classroom procedures with more careful adjustment to the needs of the individual, more careful explanation and guidance, and more extensive and intensive work.

In this area, as in others, many rather artificial devices and procedures have been recommended and are in use for dealing with extreme cases. For most of the retarded children, resort to such expensive and artificial devices is unnecessary and undesirable. In the rare case, however, they may be used partly to extend the range of experiences and partly to secure interest and a renewed hope which mere change in method or mere use of an extraordinary device may sometimes yield. The program to be sketched in the remainder of this chapter will, therefore, emphasize procedures recommended for use in typical classroom work. Other unusual and more artificial devices will be considered critically.

Introduce Special Instruction in Recognition of Words When Necessary. As pointed out above, the deficiency in recognition of thought units grows out of the inadequate development of the techniques of recognizing isolated words and of utilizing context clues. In some cases the first thing to do is to analyze the pupil's techniques of word recognition and of using context clues and introduce more intensive and extensive work to develop them to a point of greater proficiency. Thus a better basis for developing ability to recognize the larger units is provided. In many instances, the word-enrichment and word-analysis program may be carried on simultaneously with special instruction in the perception of words and thought units. In most instances it is desirable to develop ability to recognize single words very quickly and accurately as well as to secure a beginning in the development of ability in the quick recognition of thought units.

Demonstration of Nature of Thought Units. The first step in instruction and remedial work is to attempt to make it clear to the pupil what is meant by phrases or thought units, how one may discover them in sentences, and how they may be usefully employed in silent and oral reading. Several devices may be employed for this purpose.

The teacher may read aloud from a book or from the blackboard or bulletin board and by her expression indicate the substance and character of the thought units. As she reads aloud she may express a phrase as a unit, exaggerate the pause between the phrases as she moves along with a pointer to guide the pupil's eye. Thus she reads the first phrase while pointing to it, stops the pointer, hesitates, then sweeps the pointer under the next phrase as she reads it, and so on. This may be repeated with printed material placed before the child.

Other devices may be used for the same purpose. For example, the teacher may cover the line with a card and expose the units one at a time as she reads them. In some cases it may be advisable to type or print material with a longer space between the phrases than between the words within the phrases, or with every other phrase underlined. As the teacher reads a sentence, she may draw a vertical

line between the phrases. If the teacher wishes, after demonstrating phrase reading, she may ask the pupil to read the same material silently, making use of the marks or spaces to guide him in his progress.

As soon as the pupil becomes familiar with the fact that materials can be grouped into phrases, he may be asked to try his own hand. He may be asked to try to locate the thought units as he reads. He may be asked to draw a line between the words which mark off the thought units as he perceives them. The material may later be reviewed by the pupil and the teacher.

In these activities the primary purpose is to attract the pupil's attention to the existence of thought units and to get him into the habit of attempting to find them in his own silent and oral activities.

Demonstration of the Process of Recognizing Thought Units at a Single Glance. After the pupil has had some experience in breaking connected material up into thought units, demonstrations may be made of the possibility of recognizing them at a single glance. The first demonstrations may be made by any quick-exposure device. For example, the teacher can print phrases on cards in large type. These cards may be flashed or, better still, they may be covered with a blank card which may be quickly withdrawn and replaced. The teacher herself should demonstrate her ability to get the whole phrase at one glance. The teacher may put on the board a column of phrases and, starting with the blank card near the top, move the card down the column and read the phrases as rapidly as she can. She may then use a tachistoscope or flash device, while encouraging the pupil to see if he can get the whole phrase at a single glance. As noted above, in some cases it may be desirable to begin with words on which the child may be successful, mixed with the simplest and easiest phrases. The pupil may be encouraged by his success in recognizing words instantly to make more confident efforts to recognize the phrases.

The demonstrations may be repeated by using materials in ordinary book-print type. Phrases may be flashed on small cards before the pupil at the ordinary reading distance. One of the simple tachis-

toscopes may be employed for the same purpose; and whole columns of phrases may be exposed at once and read as rapidly as possible.

Other materials organized in phrases for some practical purpose may also be used. In any schoolroom there may be titles of pictures, headings for announcements, signs composed of two or more words, lists of classroom materials, headings of large posters, and other materials organized in simple phrases. The whole process of demonstrating may be carried out with such materials. In this case, the teacher can explain the advantage of being able to recognize titles, store signs, and the like, at a quick glance without detailed study. She may encourage the pupils to attempt to read headings, phrases, legends, or signs at a quick glance as they go about their ordinary business in and out of school.

Encouraging Pupils to Recognize Quickly Thought Units Which Are Encountered in Their Daily Activities. In most communities there are innumerable opportunities to practice the recognition of isolated phrases. The stores abound with cards, posters, and advertisements which contain many. On street signs, billboard posters, electric-light displays, bulletin boards, carefully chosen phrases are often displayed singly. One of the most effective ways to get the habit of recognizing words in thought units under way is to get the pupil into the habit of trying to recognize such phrases at a quick glance. One way of helping him do this is to encourage him to move his eyes quickly from one to another. Even if he misses some of them, encourage him to go ahead and see how many he can get. He can then look over the same group and see how many more he can pick up.

The child should be encouraged to make the most of natural, everyday opportunities to read thought units which appear in an isolated form in newspapers, magazines, and other material printed in smaller type. For example, some of the children's newspapers provide in their headings and subheadings many opportunities for the quick perception of two or more words at once. The child may be encouraged to look over the whole front page of the newspaper in some systematic order, trying to recognize as many headings and

legends as possible at a single glance. In some of the magazines many titles, subtitles, center and paragraph headings, and other displays are in the form of thought units convenient for such practice. The advertisements in magazines within the child's reading limits are exceedingly useful for this purpose. Many catalogues represent almost ideal arrangements of thought units carefully displayed, often with picture clues. An excellent exercise is to give a catalogue of toys or other objects of interest to the pupil and ask him to glance over each page, getting as much as he can by quick glances at the different headings, then turning to the next page and going on. Again, encourage him to move at a rapid pace even though he misses a good deal, so as to avoid dropping back into the older habit of reading each phrase word by word.

Materials used for teaching reading in the modern school provide many opportunities for developing the quick recognition of isolated phrases. For example, the teacher may arrange many announcements in which phrases are listed on the bulletin board. Pupils may be encouraged each day to glance quickly over the bulletin board to get as many items as possible by a quick glance at each rather than laboriously reading word by word. After a story has been read the teacher may ask questions and provide for the answers two or more phrases which may be printed on cards for quick exposure or placed in manuscript writing on the board for quick reading. For example, the question may take the form,

"Where was John when the fire whistle blew?"

At play.

In school."

In bed.

Many other types of organizations in which the selection of one correct phrase is the solution of the problem are given in Chap. 8. Workbook, preparatory book, or other practice materials can and usually do include many selections in which phrases are printed separately as titles, subtitles, legends for pictures, selection exercises for comprehension questions, and the like. Where these are available the teacher may encourage the pupil to try to recognize them quickly. She may make up additional exercises to provide more experience.

Inducing the Pupil to Read Connected Materials by Thought Units. Except for the materials suggested for demonstration purposes in items 2 and 3 above, the materials thus far discussed are phrases presented in isolation. A child may learn to recognize isolated phrases in legends or on signs or as headings for news stories and still be unable to read connected material by thought units. There is obviously a difference between the two tasks. When one is reading a paragraph the phrases are not artificially separated from each other. A major task is that of finding the phrase in the course of reading. It is, therefore, necessary to make sure that once a child has had some practice in recognizing phrases in a single glance he be given abundant experience in trying to perceive the ordinary material in phrase units.

In the case of the very retarded child, the teacher may need to give individual guidance in reading connected material. She should first choose very easy but interesting material, preferably selections which have been very carefully organized in thought units. She may start by asking the child to read the material silently, trying to locate the phrase units. She may then ask him to reread while trying again to grasp the material by phrases at a single glance. She may, in some cases, after familiarizing herself with the material, move a card along exposing the phrases one after another while the pupil follows. If necessary, she may make up materials for this preliminary work in which the phrases are artificially divided up to make them easier to recognize by means of larger spaces between phrases or underlining alternate phrases. Work of this sort must alternate with activities in trying to read simple material for the first time in phrase units without any guidance from the teacher or any artificial aids.

Here again there is always a possibility that the pupil will learn to read by phrases when the teacher exposes them for him or when they are separated by larger spaces but not be able to carry the technique over to reading ordinary material. An abundance of reading while the pupil is definitely trying to read by phrases is required. Rereading the material a second or even a third time for this purpose is often very helpful, since the pupil on a second or third reading is more familiar with the words and ideas and, therefore, better able

Instruction and Remedial Work

to substitute quick perception of phrases for the perception of words.

One of the most helpful means, following thoroughgoing demonstration and the other preliminary experiences outlined above, is mere encouragement to read more rapidly. Sometimes the child fails to learn to read by phrases because he has never seriously attempted to read rapidly enough to make word-by-word reading a handicap. The child who is satisfied with reading at a rate of 140 words per minute can do so by reading one word at a time. For such a child devices to be outlined later in Chap. 14 for the purpose of increasing the speed of reading may be one of the best ways of getting him to read by thought units. In some cases, little is needed other than an effort to increase the speed. The act of moving ahead more rapidly sets the stage for acquiring ability to recognize words in thought units.

Use of Mechanical Devices. Many mechanical devices, such as the Metronoscope, tachistoscopes, and Flash-meter have been used for teaching and especially for remedial work in developing skill in reading by thought units. The limitations of these instruments for diagnostic purposes, mentioned above, apply also to their use in instruction. The objection, in general, is that they represent an artificial situation. In some instances a pupil must acquire certain highly special techniques in order to deal with the instrument which are not called for in ordinary reading. For example, with a tachistoscope, a pupil must learn to disregard the moving parts and the noise. A more serious deficiency is that learning to recognize thought units when exposed in a tachistoscope is likely to be a very different performance from recognizing the same unit in a body of connected printed material. In such devices the phrase is neatly framed by itself and the whole task of isolating it, by oneself, in the body of a sentence, is not provided for. The sharply timed appearance and disappearance of the phrase is also a kind of aid which the ordinary printed page does not, unfortunately, provide. It is conceivable that a pupil may become very expert in reading phrases from tachistoscopes and other similar devices and still be quite unable to read ordinary sentences and paragraphs in thought units.

In the plan recommended above, it is assumed that these devices may be of value for initiation or orientation or preliminary service but that this is insufficient. Skill in perceiving material in thought units in ordinary reading can be achieved only by extensive practice in doing precisely that. It should be recalled that every school-room and community provides ample opportunities for demonstrating reading of thought units at a glance and of giving abundant practice in it without resorting to elaborate instruments. In many ways it is better to demonstrate and practice on headings in magazine articles and catalogues, legends of pictures, school-bulletin signs, or signs in stores than to secure the same amount of experience with a tachistoscope. The former is less artificial and is worth learning in its own right because pupils will during the rest of their lives be continually reading materials of these sorts.

The Metronoscope has certain advantages over the other types of tachistoscope and flash devices. In the Metronoscope, connected materials may be presented one phrase at a time. Indeed, quite a long selection can be presented at a predetermined rate, one phrase at a time. It is argued that children rapidly learn to do ordinary reading by thought units because the skill is built up by "pacing." Theoretically, this argument is largely false. What the pupil can learn to do very well in responding to the Metronoscope is to read phrases when they are separated by a space and automatically presented, one at a time, in a carefully prearranged form. It is obvious that when the child takes up his book, the phrases do not pop into view one at a time across the line in carefully arranged order. One can learn to do the whole task practiced by the Metronoscope and still be far short of possessing the skill to read by thought units in ordinary reading.

That the Metronoscope is an effective device for demonstrating what it is you want the child to learn and for giving him some preliminary background, is undoubtedly true. It seems improbable that it can do very much more than that. As indicated above, moreover, there are so many natural and realistic opportunities for demonstrating reading materials by phrase units that the Metronoscope is by no means essential. With a little skill the teacher can learn to cover and

uncover materials on a chart or on the pages of a book with as good, or possibly even better, results than those obtained by this instrument.

The point of view represented in the preceding paragraphs seems to be justified by the findings in certain careful experiments. Cason investigated methods of increasing the speed of reading and improving the skill in recognizing words and thought units in a typical New York City school third-grade class.¹ As noted above, this is a rather critical stage in the development of this ability. It is during the third grade that pupils tend to make rapid progress in learning to read by thought units. It is during this grade that many of them are for the first time encountering a real need to read more rapidly. In this experiment, Cason was provided with two classes for each of three types of programs. The children were carefully selected so as to form groups equivalent in intelligence, reading, and other abilities. One program consisted primarily in free reading of miscellaneous interesting material in the library. The second group spent the same amount of time in a program in which was provided a considerable amount of work with materials in which the phrases were artificially indicated by such devices as underlining alternating phrases with a red pencil, or drawing a vertical line between phrases, or leaving extra space between phrases, and so forth. In this program ordinary materials not artificially divided were also introduced. The third program was based upon the use of the Metronoscope. The program was one recommended for use with this instrument. In a typical day's work materials would be presented by the Metronoscope first at a relatively slow rate and then increasing up to a higher speed, then back to a low speed and repeating. A certain amount of reading of other kinds was also introduced. All three programs were carried for the same amount of time each day for four weeks. In general, the three groups did equally well. Although the Metronoscope was novel and highly interesting to the pupils, the gains in rate of reading, in reading comprehension, and in recogniz-

¹ Cason, Eloise B., *Mechanical Methods for Increasing the Speed of Reading*, Teachers College Contributions to Education No. 878, Teachers College, Columbia University, New York, 1943.

ing words in thought units were no greater, on the average, in the groups using this instrument than in the other two groups.

In another experiment Westover¹ employed a very ingenious exposure device which enables an individual to adjust speed and other features to his particular needs more exactly than is possible with the Metronoscope. He obtained results with college students similar to those obtained by Cason with third-grade pupils.

These studies show that the mechanical devices of the tachistoscopic and Metronoscope type really produce no better results so far as has been determined at present than have been secured by sensible use of ordinary materials. In general, this is not the same as saying that there are never special cases in which the Metronoscope or similar devices would be of greater value than other materials. As far as the present author is aware, however, there is at this time available no exact means of telling in advance which pupils would profit most from the use of the Metronoscope and which ones would get the best results by using other devices. In some instances, a very unusual device may have a special value merely because, being new, it may remove the pupil's feeling that the remedial method is the same old thing and will result in the same old failure. In general, the elaborate mechanical devices should be regarded as last resorts to be used when other methods have failed or when there is some tangible reason for selecting them at an earlier stage.

¹ Westover, F. L., *Controlled Eye Movements versus Practice Exercises in Reading*, Teachers College Contributions to Education No. 917, Teachers College, Columbia University, New York, 1946.

References

Most of the books listed in Appendix 1 deal with this topic, usually in connection with discussions of speed of reading.

Exercises

1. Describe the typical child's progress from "word-by-word" reading to reading by "thought units."
2. What is meant by an "eyeful"? From the discussion in the text would you conclude that the scope of the "eyeful" may increase with practice? Why?
3. What is meant by the "eye-voice span"? What is its importance in reading?
4. What is the relationship between reading speed and the usual elementary curriculum?
5. Is thought-unit reading independent of ability to recognize single words? Discuss the implication of your answer in terms of emphases in reading programs in the second and third grades.
6. Describe the oral reading of a third-grade child who is not yet reading by thought units.
7. In what way may silent-reading test scores be used to give information about word-by-word reading?
8. Which of the *Gates Diagnostic Tests* may be used to evaluate a pupil's ability to read by thought units? Describe the use made of the scores on these tests.
9. What is suggested as a critical grade score below which general remedial work must be undertaken?
10. Make an improvised test of reading speed at a grade level with which you are familiar. Justify your choice of material.
11. Describe several other devices for testing speed of reading. Evaluate their use on the basis of the discussions in the text.
12. Describe the logical procedure in giving remedial instruction to a word-by-word reader in the classroom situation. Prepare a sample paragraph to be read with a hypothetical child, printing or typing and spacing it.
13. What materials in daily experience may be suggested to the pupil for rapid reading? Describe several common school activities that also provide opportunities for rapid reading.
14. What value has rereading familiar material in developing reading by thought units? In what circumstances will encouragement to read rapidly be effective?

chapter 12 Characteristics and Types of Reading Comprehension

The child arrives at an understanding of a sentence or paragraph or a longer selection during reading in substantially the same way that he arrives at the comprehension of verbal material when it is read to him. In the one case the words in the selection are recognized by means of oral stimuli coming through the ear; in the other by means of visual stimuli coming through the eye. In both cases comprehension depends upon: (*a*) the accuracy of the perception of the words, and (*b*) the kinds of meanings that are evoked once the words are recognized.

Comprehension in Reading Compared with Comprehension during Listening

If the pupil can recognize the printed words as accurately and readily as he can recognize the spoken words, the process of achieving comprehension is essentially the same and what he understands

Comprehension in Reading Compared with Comprehension during Listening

in the one case will be substantially what he understands in the other. What he understands depends upon his capacity for getting meanings from verbal stimuli and these, in turn, depend upon all his preceding experiences. Comprehension in reading should be as intelligent, as subtle, as selective, as varied in character during reading as during listening. It is well to keep this in mind when considering the question of the variety of ways in which children can comprehend in reading. Actually, except as mechanical factors interfere, a child's intellectual activities in understanding, appreciating, and evaluating should be the same during reading as during listening.

The question is often raised as to how extensive, how long, or how elaborate a selection the child can understand in the early stages of reading. It is possible to find some children who can read a long selection with full understanding, provided they have no difficulty with word recognition or other mechanical factors. Others will be found who get lost in a long selection and can understand only a relatively short story or part of a story at one reading. Still others may be found whose limit is a single paragraph. Some indeed may be found who can understand sentences one at a time but have difficulty comprehending a whole paragraph. If difficulties in word recognition and other mechanical matters are eliminated the child can probably understand, during reading, material about as complex or as long or as difficult as he can understand in spoken form.

All the pupil's abilities to understand, appreciate, and remember ideas given to him in spoken form can be utilized fully in reading except as mechanical difficulties interfere or as features of teaching tend to distort the process. Limitations in reading sometimes result from both difficulties. As an example of the former, we may take the instance in which a child's recognition of the printed word is much slower and more labored than his recognition of the spoken word. The necessity of giving more time and attention to mere word recognition may seriously interfere with comprehension. As an example of the latter, we may take the instance in which the teacher persistently asks the pupil after a single reading to answer

precise questions on unreasonably minute details. In such a case the child may depart from his natural or normal process of comprehension in order to meet the artificial demands of the schoolroom. He may in such instances fail to see the forest because of his effort to identify particular trees.

In sizing up a pupil's comprehension in reading we may consider each of the following aspects of understanding: (*a*) the type of comprehension; (*b*) the range of comprehension; (*c*) the accuracy of comprehension; (*d*) the level of comprehension; (*e*) the speed of comprehension.

Types of Reading Comprehension

A popular misconception is that when a pupil reads or hears a paragraph he simply grasps or understands or comprehends what he hears or reads. The implication is that the spoken or printed statement contains a definite series of ideas and that comprehension consists merely in getting these ideas. A further implication is that everyone gets exactly the same general impression and the same details. Comprehension, in other words, is regarded as merely getting precisely what has been said or printed.

As shown by Thorndike,¹ this is not at all the case. Comprehending a spoken or printed paragraph involves a very complex mental operation which is far more than and far different from merely picking up or taking over a definite idea or set of ideas. Different individuals get quite different impressions from reading or hearing the same paragraph. What each individual grasps depends upon his past experience and his set or adjustment as well as his general mental alertness at the moment.

If the passage is at all complex, no one will get all the precise ideas and those grasped will be differently organized by different persons. Not infrequently the variations among intelligent people are very great. Comprehension is, in other words, always partial, incomplete, and highly personal in character. It is always selective.

¹Thorndike, E. L., "Reading as Reasoning: A Study of Mistakes in Paragraph Reading," *Journal of Educational Psychology*, June, 1917, Vol. VIII, pp. 323-32.

Types of Reading Comprehension

What one is able to report of a passage read or heard represents an individual selection of ideas and a quite unique personal organization of them. Hearing a paragraph or reading one should be regarded not as a process of mentally photographing a series of definite ideas but rather as one of selecting, evaluating, and organizing a series of rather subjective impressions.

In the initial stages of reading, a child is capable of employing as many kinds of selecting, evaluating, organizing, and thinking activities as he is capable of using when he listens to spoken passages. Children are, in fact, capable at least in an elementary fashion of employing all the types of selective thinking, evaluating, and judging of which they will be capable in later years. Children can listen to what someone says in many different ways and for many different purposes. For example, a child may listen to a parent's remarks merely for the purpose of getting a general idea of what they are all about. In this case, the child does not attempt to remember every detail; he merely tries to get the general upshot of the comments. A child can read the same statements in print for the same purpose, merely trying to note what the main ideas are.

At another time the child may realize that it is important to remember all or at least a number of the details. For example, a child may be listening to the mother tell, or be reading the same words in print, about an episode on the street involving different children and activities. He may set himself the task in either case of remembering the details rather exactly or, at any rate, of remembering a certain number precisely. The mental set or point of view is different in this case from the preceding one and what the child actually comprehends as well as what he remembers may also be different.

The child may listen to the teacher's directions or read a printed statement of directions for operating the class projection lantern. A sagacious child will understand in this case that he must get the directions exactly and remember them perfectly. It is not sufficient merely to get a general idea of how the apparatus is operated or merely to select a few interesting details. He must get all the steps precisely. His purpose in listening or reading in this case is, therefore, different from those in either of the preceding instances.

Comprehension is, in other words, a highly selective activity. One may listen or read at different times for quite different purposes. A child of normal intelligence can set up his purposes before he listens or reads and maintain a "mental set" which enables him primarily to get what he wants to get. Reading and listening are never merely passive processes in which words said or noted by the eye are "taken in" without weight or selection or without some specific purpose in mind, and what is actually understood and remembered will differ with the purpose operating during the process.

The literature of reading will reveal a variety of kinds or classes or types of reading comprehension. The lists may seem to differ considerably from author to author. Actually there is a large number of variations and shades of difference and any list or classification is an arbitrary arrangement made for convenience. Reading is thinking and one can read in as many ways and for as many purposes as one can think. In teaching reading it is important to find provision for the more important types of reading and reading purposes. The following grouping will probably include most of the important ones.

1. *Reading to get the main idea or a general impression.* The "main purposes" may be of many kinds. Thus a person may read to get merely the drift of a story, the main point of an argument, the predominant emotional tone—whether, say, optimistic or pessimistic—the author's attitude—whether pro or con—the quality of the composition—whether simple or involved, pleasing or irritating.
2. *Reading to note significant details.* A pupil may read primarily to note details of each of many types. For example (*a*) the most important; (*b*) those that bear on a particular problem or topic; (*c*) those that are most interesting; (*d*) those that are most true or doubtful; (*e*) those that are new or recent.
3. *Reading to note and remember precise directions,* for example, reading the directions for operating an apparatus, or making candy, or finding the way to a store.
4. *Reading to predict what comes next or the most probable issue or conclusion.* This is the type of reading utilized when a pupil

Types of Reading Comprehension

reads all of a story except the last part and then tries to tell what the outcome will be or when he reads an argument up to a certain point and then tries to anticipate the conclusion. It is reading in which the pupil uses what has been read to anticipate or predict a reasonable or probable outcome or further step.

5. *Reading for the purpose of evaluating the material.* An illustration of this type of reading is an assignment to read a story for the purpose of reporting how interesting it is, or how important, how true, how timely, how well written, how easy. This type of reading differs from reading to note particularly new or important or interesting *details*, mentioned above, in that it represents an appraisal of the selection as a whole. Needless to say there may be intermediate stages between the two.
6. *Reading for the purpose of reproducing the material in some type of summarized form.* An example would be reading to be followed by the writing or presenting orally of a brief summary, or outline, or some other form of condensation.
7. *Reading for the purpose of comparing the form or substance of the selection read with other content.* An illustration of this type of reading would be an assignment to read a particular selection and report whether it was more interesting, more important, more difficult, or otherwise different from another selection. The comparison may be made with sources of information other than another reading selection. For example, the question may be whether a selection adds to or differs from, in any one of the several ways, the content of a lecture, a motion picture, a radio drama, or the body of information already acquired by a class from its previous study. It should be noted that this type of reading is often very similar to the "evaluating" form mentioned in sections above.
8. *Reading for the purpose of remembering.* A person may read for the purpose of understanding the content for the moment or for temporary use, or for the purpose of remembering it for later reproduction. He may attempt to remember the content verbatim, or he may try to learn only certain ideas, such as the main ideas, or significant details, or an outline. Reading to learn for

later recall, either by memorizing the passages exactly or by mastering the substance in whole or in part, is a somewhat different technique from reading for immediate understanding only.

The various types of reading listed above represent the major distinctive kinds. In later discussions, especially in Chap. 15, they will be described more fully, and the ways in which they are combined to produce a larger number of complex reading patterns will be described.

It is advisable to repeat that typical pupils have been setting up for themselves all of these purposes and have been thinking in all these ways with reference to selections given them orally or dramas or motion pictures observed before they come to school. This is really merely saying that children have been thinking in various ways about ideas presented to them in many forms before they begin to read. The task of the school is to introduce into the reading instruction opportunities for all these important types of thinking during and following the reading process and to carry them forward to higher levels of complexity and refinement. For example, the first-grade child has had experiences in reproducing ideas in outline form. If he reports the events that occurred at a party he attended or gives a running account of a motion picture he has seen or a story he has heard he will, in some instances, produce the elements of a chronological or otherwise orderly outline. At this stage he may be unable to divide the material up into major points and subordinate ideas carefully arranged, chronologically or logically. It takes time and experience to acquire ability to reproduce material in the highly formal outline pattern likely to be called for in the upper grades. The latter, however, represents merely an extension and refinement of what the child is capable of doing when he enters school and has been doing previously.

The reading program provides an excellent opportunity for the cultivation of many types of thinking. For example, take again the case of developing ability to compare in some respect the content of the materials read with other materials previously read or heard or seen in dramatic or some other form. When some interesting enterprise is set up which makes such a type of intelligent reading

Types of Reading Comprehension

seem important, the reading period provides an excellent opportunity for developing skill. By giving all the children the same material to read, a basis for comparing notes is provided. If the task is to compare one selection with another, both may be reread for the purpose of finding additional similarities and differences. Printed materials provide a more convenient and objective basis for settling disagreements than would their memory of a selection read to them or of content seen in a motion picture or elsewhere. In reading, each child can proceed at his own pace, follow his own ideas, and reorganize the material as often as seems desirable. Having a rather objective basis the teacher can throw out suggestions, correct erroneous impressions, show how to find relevant materials and compare them, and adopt other valuable devices for improving ability to think. For the improvement of many aspects of thinking, reading activities provide one of the most useful means.

Reading may and should become an extraordinarily flexible and adaptable activity. A skillful reader can adapt the technique to any one of a large number of special purposes. For example, if a pupil undertakes to read a rather difficult selection in a history or science book, he can apply a variety of attacks. He may, for example, give it a first rather superficial and rapid reading for the purpose of getting the lay of the land. He may then reread with much more thoroughness. He may elect to pick up and reread a particular sentence or paragraph during the second reading. He may then organize the content, at least roughly, in his mind or make notes on paper and reread, for a third time, at a very rapid speed for the purpose not of giving equal attention to all the ideas but of picking up certain further details or straightening out an ambiguity here and there. Still later he may skim the entire selection, giving major attention to the most important points and less attention to minor points. In such a process quite a wide variety of "ways of reading" and purposes in thinking are brought into play. The great merit of learning by reading is that one can do it at any time and in any place at the rate of speed and in the technical manner that seems best to suit one's purpose. One can hurry the reading if the circumstances require one to do so. One can take it in a leisurely manner if one so

elects. One may achieve a control, a flexibility, and a diversity of learning by reading that is not possible to the same extent in learning by listening to lectures or observing motion pictures or concrete activities.

Many texts on reading give lists of specialized types of reading called "study techniques." On analysis, most of these turn out to represent various combinations of the types of reading mentioned in the lists above. Reading of each of the types listed above may be done at different speeds. For example, a person may skim a selection during the first reading for some purpose, such as to note the main ideas, or one may read the selection rather slowly to note the main ideas. The first would be called "skimming" and the second "ordinary reading." The difference is chiefly one of speed. In both there are particular purposes in mind and a high degree of selectivity. There are, of course, many intermediate steps between the most rapid reading or skimming of which a person is capable and the slowest, most thoroughgoing reading. It should be noted also that a person may read for various combinations of purposes. For example, he can read merely to get the main ideas of a selection or he can read to note the main ideas, also to size up their importance or variety, and at the same time to keep them together in order to permit him to make a brief summary of them. When we realize that reading can be done at a great variety of speeds for a single purpose, or for any one of the large number of combinations of purposes, it is obvious that there are possible an enormous number of more or less definite patterns of reading reactions.

Reading techniques can be adapted furthermore to a great variety of kinds of reading material. For example, the technique of learning to get the main idea from a chapter in a book consisting of paragraphs without headings, italicized words, or other special devices, will differ in several respects from reading to get the main ideas of a selection in which there are major center headings, minor center headings, paragraph headings, italicized words within paragraphs, and other such devices. There are also special reading techniques which may be acquired for dealing more effectively with maps, various kinds of illustrations, cartoons, legends, outlines, headlines, for-

Range of Reading Comprehension

mulas, diagrams, symbols, and many types of technical materials. The abilities required to deal effectively with the innumerable forms of printed matter and the many types of technical material are not to be regarded as completely different reading skills. They represent rather variations and combinations of the types outlined in this section carried on at different speeds, degrees of accuracy, ranges and levels of comprehension, and adapted to different kinds of material. In many instances, successful reading depends upon learning to perceive and comprehend special forms and symbols such as numbers, graphs, and diagrams. For example, one must be able to recognize the form and meaning of Latin words to read Latin prose, but this does not mean that reading Latin involves a different type of reading from reading English.

Range of Reading Comprehension

As pupils progress in reading ability they increase the range or amount of reading matter which they can comprehend with a given degree of fullness and accuracy during the course of a single continuous reading. A pupil at the beginning of the first grade may be able to read and carry in mind the important points of only a relatively short selection, perhaps only a sentence. Later he can read and understand a short paragraph; later he can grasp a short selection, containing several paragraphs, and so on until he can comprehend a long chapter or more.

At the time of beginning reading pupils will differ in the range or amount of material which they can understand and keep in mind when the selection is said or read to them. Their ability depends upon their general intellectual power and upon the amount and character of their previous experience in hearing things. The child to whom relatively little is said or told or read and whose experiences have largely been confined to short statements or stories or descriptions may not have learned how to grasp and keep in mind longer compositions. On the other hand, the child who hears a great deal from other children, or adults, or the radio, and who has listened to long discussions or long stories may have developed techniques

of comprehending and remembering materials of a much wider range. During the initial stages of reading the necessity of devoting more time to the mere mechanics of reading and of being more frequently halted or puzzled in word recognition will typically result in inability to comprehend as long selections in reading as in listening. Indeed at an early stage a pupil's range may be practically limited to one sentence at a time. Such a pupil may become lost in a paragraph before he finishes reading it. It may be some time before the range of comprehension in reading will equal the range of listening. When the mechanical factors in reading become quite fully mastered the pupil should be able to extend his range in reading to an amount equal to or even in excess of that which he can adequately comprehend during listening.

The range will depend upon the difficulty of the material for the particular child. He may, for example, be able to read with full appreciation a story of a simple sort of much greater length than would be possible of an assignment of more complex and unfamiliar material in the textbook in history or science.

One of the things a pupil must learn is to recognize his own limitations in range. For example, if the history assignment is too long for him to keep the thought reasonably full and clear in the first reading, he should adopt some other method. One method would be to stop before he has exceeded his limit and perhaps reread and get more clearly in mind the material up to that point. He may then, with a better background of understanding, read a second section. If he approached the limits of his ability to keep the entire thought in mind before the end of the assignment he may profitably halt and review both of the preceding units before going ahead. There are, of course, other techniques of dealing with the very long selection. For example, if the pupil can see in advance that the selection is too long to understand very fully he may cover the entire material in a first reading to get the very general understanding or orientation within it, then go back and break the selection up into units for more thorough reading.

Accuracy of Reading Comprehension

Different pupils assigned the same reading selection will, after a first reading, comprehend with different degrees of accuracy. In general, moreover, the pupil's accuracy increases from the beginning stages of reading to the maximum level achieved in adult life. In diagnosing reading comprehension it is advisable to secure some measure or appraisal of a pupil's typical accuracy.

Pupils will differ widely in the accuracy of their comprehension. On a basis of some standard—the matter of determining a reasonable standard will be discussed later—a teacher may decide which pupils are reading with about optimum accuracy, which ones with too low a level of accuracy, and which ones with perhaps an unduly high degree of accuracy. Needless to say, the standards should be different for pupils with different amounts of experience and for materials of different levels of difficulty or of different lengths.

The best reader is the one who comprehends the material with a rather high degree of accuracy for the purpose in mind. Among children who get all the answers correct in a test are likely to be some who have read the material with more thoroughness than the practical situation demands. It would, for example, really be unfortunate for a child if he read everything so thoroughly as to note and recall practically every detail, such as minor matters in a description of a scene, or the precise physical features of a character. Such a reading may in many situations go well beyond the purpose of getting a general understanding and can be secured typically only by reading very slowly and with an undue amount of effort. Some children do read many selections at a higher level of precision and accuracy than is advisable. Others are habitually satisfied with a degree of accuracy and comprehension that fails to meet many practical demands; their comprehension may be so full of inaccuracies and ambiguities as to lead them into serious misunderstanding of the passage as a whole.

In attempting to learn to read with a desirable degree of accuracy in different situations pupils are assisted by being helped to realize

what a desirable degree of accuracy is and how the accuracy with which they themselves read compares with the standard. Programs in which comprehension in reading is brought out by means of discussions or tests serve both purposes. Unless a child's comprehension is checked up and unless he is given a chance to try out his understanding in various practical ways he will have no effective means of learning how accurately he should comprehend material for different purposes. The desirable degree of accuracy, of course, would vary with the purpose for which the pupil reads. The accuracy of the pupil's comprehension of details in a story read for general enjoyment may properly be very different from that desired when he reads a set of directions for operating a device.

Levels of Reading Comprehension

Among third-grade children one may find one pupil who can comprehend reasonably well a passage as difficult and complex in its thought as a typical selection from a high-school textbook in history or science. Another child may be found who can read with satisfactory degree of comprehension passages no more difficult than those found in the typical textbooks for the third grade. The one can comprehend reasonably well at a very much higher level of complexity than the other.

In teaching it is important to know approximately the level of comprehension of which the individual pupils are capable. If the class is studying a topic in history the first pupil mentioned above might very well read histories of high-school level and report them to the class. If the second pupil were given this assignment he would encounter frustrations in his efforts and his report to the class, if any were made, would probably be useless, if not misleading. That pupil had better be assigned supplementary reading at a third- or lower grade level of comprehension.

As we shall see later, a pupil's level of comprehension depends upon many factors, his intelligence, his mastery of the mechanics of reading, his reading vocabulary, as well as his special techniques in analyzing rather complicated language. It depends in part also

Levels of Reading Comprehension

upon his experience. To give one illustration, the third-grade pupil who has rarely if ever attempted to read materials except those of third-year or lower grade level may be expected to flounder in more difficult materials, because of his lack of experience in dealing with them. There are a number of special "tricks of the trade" of dealing with more complex content in printed form which a pupil can learn only through experience.

From the available studies it appears that once a pupil has achieved a fair mastery of the mechanics of reading and has had a fair amount of experience with reading different types of materials and for different purposes, he should be able to comprehend during reading material quite as difficult as he can comprehend in spoken material.¹ Indeed, adults can apparently comprehend highly difficult material somewhat better during reading than during listening.

Studies of good and poor readers show that the best readers modify their reading attack very noticeably in accordance with the difficulty and complexity of the content. An obvious feature of the modification is the change in the speed. The harder the selection the slower the reading rate. This is by no means the only change made to suit the complexity of the content. One of the great advantages of learning by reading as compared to learning by listening is that the reader can determine the rate of progress and to a considerable extent the technique of responding, whereas he cannot control the speed and certain other features of the oral presentation. On the other hand, the oral presentation may embody certain advantages. For example, an effective speaker may give vocal emphasis to important points, slow up his pace on the more difficult features, and otherwise help the pupil in his efforts to distinguish the important from the subordinate ideas. In general, the studies tend to show, however, that comprehension of spoken material is somewhat better when the material is relatively easy and that comprehension of the printed material tends to be superior in the case of the most difficult content.

¹ Goldstein, Harry, *Reading and Listening Comprehension at Various Controlled Rates*, Teachers College Contributions to Education No. 821, Teachers College, Columbia University, New York, 1940

*Speed of Reading Comprehension*¹

Children of any given age or grade differ widely in their speed of reading. The figure on page 22 indicates roughly the typical curve of improvement in the speed of reading through the grades. One of the most commonly asked questions and one of the most difficult to answer in any simple way is how rapidly a child should be able to read in a particular grade.

For reasons indicated in the preceding section, pupils after a reasonable amount of experience in reading should be able to comprehend printed material as rapidly as they comprehend the same material in spoken form. We may, therefore, consider first the question of how rapid a rate of oral presentation a pupil is able to deal with.

Before entering the first grade children have had much experience in listening to and comprehending what is said to them by other children and adults. There is considerable range in the speed with which people talk or read aloud. A pupil will hear relatively little said or read at a rate below 100 words per minute and above 180. Most of what a pupil hears will be given orally at a rate between 138 and 155 words per minute. A person speaking at the rate of 180 words per minute would be regarded as speaking exceedingly rapidly. We may, therefore, regard 180 words per minute as about as rapid a rate of comprehension as a child encounters.

It should be noted that the pupil's rate of comprehension of oral context is limited by the speed with which people speak and not necessarily by the speed with which the pupil is able to comprehend. It is theoretically possible that he could comprehend material said to him at a rate considerably in excess of 180 words per minute, at least after some experience. In an experiment upon adults Goldstein¹ found that the mature person could comprehend material spoken at a rate of 322 words per minute quite well, nearly as well as material spoken at a lower rate. Comprehension was about equally good for material presented at the rate of 100, 137, 174,

¹*Ibid.*

Speed of Reading Comprehension

and 211 words per minute. The score for the slowest of these rates was approximately 22 and for the fastest 21.6. When the rate was increased to 285 it was 20.7 and to 322, 19.6. There was a tendency for comprehension to decrease slightly when the rates were 250 or more words per minute, but the understanding was still relatively good. Although the facts have not been exactly determined experimentally, it seems likely that if the rate of oral presentation were increased much beyond 320 words per minute, difficulties in discriminating the words might make their appearance and thus reduce the degree and accuracy of comprehension.

In the case of reading it seems reasonable to expect that pupils can comprehend as rapidly as they can understand spoken material, that is, up to at least 180 words per minute unless the process of word recognition cannot be carried on that rapidly. It takes some time for pupils to read at sight at rates of 150 to 180 words per minute. In the average case children can read relatively simple material at the speaking rate in the early part of the third grade. The curve on page 22 shows that the typical child makes progress beyond this point. Although he has had little or no experience in comprehending spoken language at rates above 200 words per minute, he learns to comprehend printed material at a higher speed.

In considering theoretically how rapidly persons might be able to read, two questions should be asked. First, how rapidly can a person actually understand verbal matter and, secondly, what are the limits, if any, to the process of perception of printed words? We noted above that adults at least can probably understand material presented orally as fast as they can really perceive the spoken words. The limit in this case seems to be set not by ability to think or comprehend but by ability to perceive the spoken words. There are many individuals, including children in the intermediate grades, who can understand the main ideas of verbal materials very much faster than they have ever heard them spoken. Reading, or, to be more exact, skimming, at rates of 600 or 700, or even as rapidly as 1000 words a minute, may be found. In other words, certain individuals can understand at least in some measure verbal materials at a very high rate. Apparently for these individuals the limit of

visual perception of printed materials and of a reasonable degree of comprehension exceeds two or even three times the rate of typical speech.

It will be found that a highly proficient reader adopts very different paces at different times. He may at one time skim over the material and comprehend as well as needed for the purpose, at a rate of 800 words per minute or even faster. The same individual at another time may be reading at 500 words a minute; at another time, 300; and perhaps occasionally at 150 words a minute or less. The proficient reader is able to set up an optimum speed for each particular purpose. Obviously such an individual may change his pace during the reading of one selection. He may, for example, read a few pages at 800 words per minute and slow down on a paragraph or two to 200 words per minute, then speed up to an intermediate level, and so on. The speed with which such an individual would read would differ with his purpose. It might be very rapid, other things being equal, if he merely wanted to get a general impression of the content and very much slower if he desired fully to understand and to remember many of the significant details. His speed would also vary with the difficulty or complexity of the material. He would read a simple story in a popular magazine at a very high speed, whereas he would probably read very much more slowly if he were endeavoring to understand a complex article in the *Encyclopaedia Britannica*.

The facts just enumerated indicate that it is impossible to name any particular optimum speed, in general. There is no simple answer to the question, How rapidly should a third-grade child read? The proper speed will vary not only with the child—his capacity for understanding verbal materials, his capacity for rapid perception of printed words—but also with the difficulty of the material, the kind, fullness, and accuracy of the comprehension desired, and other factors. For example, a pupil may be disposed to read a story at a fairly rapid pace at one time, and at a more leisurely pace at another. What we may say is that it is possible for pupils to read relatively simple material at a rate that is very high compared with the speaking rate and it is desirable for him to de-

velop the techniques of rapid reading, if he can do so without too much strain or effort. By learning to read at the high rates the pupil has the opportunity for a wide range of flexibility. It is equally important to learn to read for very full and exact understanding at a very slow pace, slower than the typical speaking rate, and to learn to read at all the intermediate stages. This would make of reading an exceedingly flexible and efficient learning technique.

A very common fault among pupils is that of failing to push the rate of reading beyond the typical rate of comprehension of spoken language. It is not surprising that this is the case. For six years or more the pupil has found no occasion, indeed no opportunity, to comprehend language faster than it is given in speech. A speed of comprehension of around 150 words becomes very firmly habituated. When he turns to reading he is likely to strive to increase his speed until he achieves this level and be quite content to function thereafter at that level. It may never occur to him that he could read more rapidly. A problem among all children, then, is that of providing incentives and instruction which enable them to push beyond the rate of spoken language.

Another characteristic of many children, even including those who have learned to read more rapidly than the speaking rate, is to adopt some one speed which seems most pleasing and to read everything and for every purpose at approximately that speed. This is perhaps not unlike the familiar habituation of the speed of driving a car. Many individuals report that they like to drive at a given speed and that driving more slowly or more rapidly results in their being less comfortable. The speed habituated in reading may be at almost any level. The most frequent speed is around 150 or 160 words per minute, but some individuals read almost everything at a slower pace and others at a higher pace, such as 200 or 300, or, rarely, even higher. These individuals lack flexibility.

We probably do not at the present time know all the factors that enter into the determination of the top levels of speed of reading for each individual. We do know, however, many of them and a comprehensive diagnostic study enables a teacher to help many individuals to achieve higher levels of speed. Such habits as excessive

articulation, the deliberate adoption and habituation of an easy-going pace, represent habits of procedure which may be replaced by more efficient ones.

Characteristics of Oral Reading

Oral reading is a much more difficult activity than silent reading. In oral reading the child is required to do all that is demanded in silent reading and several things in addition. In oral reading the pupil must recognize the words, work out or guess unfamiliar ones, get the thought, and, in addition, he must pronounce the words, give them, if possible, some form of expression, as well as pay some attention to the way he stands, holds the book, faces the audience, and in general the way he conducts himself before a group of observers. If a pupil encounters an unfamiliar word in silent reading he can take time to try to work it out by visual or phonetic analysis and by glancing ahead to get more context clues. In oral reading this study would bring reading to a halt and attract attention to the difficulty. In the early stages when pupils are unable to read ahead of what they are saying, they often do not clearly grasp the thought of a sentence until they have nearly or fully completed the reading. In silent reading no embarrassment attends this delay but in oral reading the failure to comprehend the sentence as a whole until it is completely read provides a special difficulty in giving it effective expression. In silent reading a child need incur no embarrassment when he is uncertain of the pronunciation of a word or when he makes occasional misrecognitions, whereas in oral reading mistakes may be embarrassing and lead to further confusions. Oral reading in these and other respects is a more complex and difficult activity than silent reading.

Oral reading subjects the pupil to a variety of difficulties and tensions which occur when one makes a public appearance. Even experienced adults are likely to be tense, nervous, easily embarrassed, sometimes frightened, and more subject than otherwise to mistakes in reading even easy material at sight before an audience. Sight reading for the immature child is very much more difficult. The

Characteristics of Oral Reading

likelihood of encountering unfamiliar words, the limitations of the eye-voice span, the uncertainties resulting from inexperience in appearing before an audience, place the child in a critical emotional situation. Unless proper precautions are taken, oral reading at sight produces a relatively large number of mistakes and confusions. The pupil who has had difficulty on one or more occasions is likely to become tense and fearful of making mistakes and becoming embarrassed later. There is danger in oral reading of developing not only "audience shyness" but marked emotional tensions and blockings which result in making the oral reading an especially nerve-racking and dreaded ordeal.

Even when the pupil has had an opportunity to read the material silently and to rehearse it by himself, reading before the audience, especially one of whose sympathy he is uncertain, is a difficult and tension-provoking experience. Although the rehearsal may have reduced or largely eliminated the hazard of encountering difficulty in word recognition and in getting the thought, the pupil still is concerned about his pronunciation, the pace and emphasis of his expression, the way he holds his book, the kind of posture he maintains, and the act of looking up from the book and finding his place again.

Effective teaching of oral reading involves conscientious and intelligent efforts to achieve two conditions. The first is that of reducing the difficulty of oral reading by giving the pupil sufficient preparatory experiences to enable him to feel quite sure of his ability to recognize and pronounce the words, to secure the thought, and otherwise to carry out the performance without confusing mistakes. The second is to enable him to face the audience in an oral reading situation with calmness and confidence. The first purpose is achieved by giving the pupil plenty of opportunity to read the selections, first silently, and, if necessary, to rehearse them orally by himself or before a completely sympathetic audience such as the teacher and perhaps later a few dependable friends. In this case, oral reading is rereading and not sight reading. Sight reading is introduced only after the pupil has achieved confidence and feels completely comfortable before the group to whom he is to read. Freedom from

emotional tension even if mistakes are made can be promoted by a teacher who manages herself and her class in such a way that embarrassing events do not occur.

Types of Oral Reading

By sight reading we mean reading a selection seen for the first time without any preceding study of it. Different degrees of preparation may be made before the oral presentation. The minimum preparation would be a single rapid survey of the material in silent reading. Further preparation may be made by additional silent reading resulting in increasing familiarity with the individual words and the organization of the content in general. Still further preparation may be provided by reading the selection aloud to one or several groups of listeners. This type of rehearsal either in silent or oral reading could go on until the material is nearly memorized.

In everyday life one is likely to hear over the radio or elsewhere oral reading based upon different degrees of preparation. One may hear a news report or a drama in which the "speaker" or actor is really reading, that is, following the line of a printed script, but he is reading material that has been rehearsed so thoroughly that he practically knows it by heart. Some individuals require less rehearsal to be sure of themselves. In working with children in the school it requires fine judgment on the part of the teacher to know how much preparation is needed to ensure smooth and effective performance free of emotional tension on the one hand and to provide, on the other hand, experience which will enable the pupils to grow in ability to read orally with less preparation.

Oral reading is frequently combined with other activities. For example, in rehearsing a part in a play or presenting announcements or news reports or taking part in a debate, reading may be combined with speaking from memory. Many experienced performers are able, after a certain amount of rehearsal, to present their material partly from memory and partly from actual reading. They have developed skill in remembering exactly where they are in each paragraph. Thus they are able, for example, to say the first two lines

Types of Oral Reading

in a particular paragraph from memory while looking at the audience and then instantly to glance at exactly the right place in the manuscript and read the remainder of the paragraph. Thus they can go through the selection by alternating between reading and reciting from memory.

Many speakers combine actual reading with speaking in which they do not give the text verbatim but present more or less the same ideas. Many lecturers use this method. On the paper before them they may have either a few sentences or notes or the full text of the address. What they do is to read the note or the sentence or the part of the paragraph from the text and then proceed to amplify in free oral composition. This device is used by hundreds of persons in making committee reports, sales talks, in debating, giving instructions for operating devices, and so on.

The problem of speed in oral reading is, of course, different from that in silent reading. The oral reading rate is limited to the speed of comfortable and effective expression. As pointed out earlier the normal range of expression is in the neighborhood of 140 to 150 words per minute. The problem in oral reading is one of expression in which the change of pace is an important matter. The inexperienced child in the primary grades tends to read in a rather formal and stilted manner. He is likely to read one word at a time with relatively little expression. Many children adopt a formal and fixed method of expression, repeating the same speech pattern for sentence after sentence. Often the voice itself takes on an unnatural character quite different from the speaking voice. These features of oral reading often are valuable clues to the teacher and diagnostician for determining the nature of difficulties in the process. Certain high, stilted types of expression are signs of emotional distress which is sometimes not otherwise obvious.

The speed of sight reading in the early stages typically falls considerably below a comfortable rate of speaking. This is, of course, due to the fact that the unfamiliarity of the material presents difficulties in recognizing the words and getting the thought. Oral reading at sight which must be carried on at a slow and labored pace should always be regarded as possibly of doubtful value. In

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general, if it is accompanied by emotional stress or tension it is probably inadvisable. Free of such distress it has its merits as a practical exercise. It should always, however, be regarded as an abnormal and critical activity.

Even in the earliest stages pupils can be given the experience of reading orally at a natural speaking rate with appropriate expression by providing them with sufficient rehearsals through silent or oral reading or both. This type of oral reading, one for which the pupil is fully prepared and which he can carry on at his normal speaking rate and with the expression which springs from complete understanding, is highly desirable.

References

In addition to the references in Appendix 1, the following are recommended:

- DeBoer, J. J., ed., *Policies and Practices in the Improvement of Reading*, National Council of Teachers of English, Chicago, 1943.
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- Horn, Ernest, *Methods of Instruction in the Social Studies*, Charles Scribner's Sons, New York, 1937.
- Yoakam, G. A., *Reading and Study*, The Macmillan Company, New York, 1928.

Exercises

1. Discuss the dependence of reading comprehension on listening comprehension.
2. Explain what is meant by comprehension as a selective activity.

Exercises

3. Name and give an example of each of the types of reading comprehension described in the text.
4. On what reading skills do so-called study techniques depend? Discuss the value of flexibility of reading approach.
5. On what circumstances does range of comprehension depend?
6. Describe how one's purpose in reading should influence the degree of accuracy of his reading.
7. Name some of the factors that influence level of comprehension in reading. How may a child's level of comprehension be estimated?
8. What is usually regarded as the maximum rate of comprehension of spoken material for children? At what point in reading progress is reading comprehension likely to reach approximately the same rate?
9. Discuss the speed of reading of the proficient reader.
10. Suggest several possible ways of motivating an increase in reading speed in the fourth grade.
11. Mention some of the reasons why oral reading is more difficult than silent reading. Suggest ways in which the difficulties of oral reading may be mitigated for children. For adults.
12. Discuss rate of oral reading and its value in reading diagnosis.

chapter 13 Diagnosis and Improvement of the Range and Level of Comprehension

This chapter is concerned with the diagnosis and improvement of certain basic abilities involved in the understanding of sentences, paragraphs, and longer selections in ordinary reading. The diagnosis and improvement of the range and the level or power of comprehension will also be treated. In Chap. 14 we shall deal with the diagnosis and improvement of speed and accuracy of reading, and in Chap. 15 with the measurement and development of various types of reading, such as reading to get the main idea on the one hand, and reading to get specific details on the other. First of all, we shall, however, consider methods of determining general or all-round ability in reading comprehension.

Methods of Determining General or All-Round Backwardness in Reading Comprehension

Each of the special batteries of the Gates group reading tests makes possible the diagnosis of general ability and disability in understanding during reading. These batteries were described in Chap. 3. In this chapter are discussed the choice of tests and the ways of using them in trying to arrive at a diagnosis of the pupil's general competence in comprehension at several grade levels.

Following are the tests designed to measure comprehension at each of several grade levels.

1. *Testing comprehension in Grade 1 and in the first half of Grade 2.* The *Gates Primary Reading Tests* contain two tests for this purpose: Type 2, Sentence Reading, and Type 3, Paragraph Reading. Both are tests of reading comprehension. The Paragraph Reading Test measures the pupil's ability to read and understand materials of primary-grade type, written in the simple primary-grade vocabulary. This test measures ability to comprehend material organized in paragraphs beginning with rather simple and easy ones and gradually moving up to longer paragraphs with more ideas and more relationships in them. At this early stage the Sentence Reading Test is also included since it is possible that some children may be able to comprehend single sentences who have not yet learned to read and keep in mind the more numerous ideas and relationships contained in paragraphs. The Sentence Reading Test measures comprehension at the lowest possible level for the simplest type of organized material.
2. *Testing comprehension from the middle of the second grade through the third grade.* The *Gates Advanced Primary Tests* should be used in an average or somewhat better than average class at the middle and during the latter part of the second grade and up to the middle of the third grade. For a slower group it would be better to use the *Gates Primary Reading Tests* at the middle of the second grade and the *Gates Advanced Primary Tests* later in the second grade and up to or even later than the

middle of the third grade. Pupils for whom the comprehension tests in the *Gates Advanced Primary Tests* prove too difficult should be retested with the *Gates Primary Reading Tests*. In the latter part of the third grade the tests listed below may be used for measuring comprehension as well as the *Gates Advanced Primary Reading Tests*.

The *Advanced Primary Reading Test* includes one test, Type 2, Paragraph Reading, to measure all-round ability in comprehension. The sentence reading test of the type used in the *Primary Reading Test* is dropped out since it would not be necessary to test comprehension for so simple a unit, in the average case, after the middle of the second grade.

3. *Testing comprehension during the second half of the third grade and in higher grades.* The *Gates Basic Reading Tests* include four tests of comprehension, namely, Type A, Comprehension and Reading to Get the General Significance of a Paragraph; Type B, Reading to Predict the Outcome of an Event Given in a Paragraph; Type C, Reading to Follow Directions Given in a Paragraph; and Type D, Reading for Specific Details in a Paragraph. These tests are composed of relatively simple paragraphs of approximately equally simple materials. In this test the speed as well as the general all-round success in understanding the material is measured. This test is designed to measure specifically four types of reading comprehension. The general all-round ability in comprehension is determined by averaging the grade or age scores for all four tests.

The *Gates Reading Survey for Grades 2 to 10* includes two tests in which the scores are based on comprehension—the Speed Test and the Level of Comprehension Test. Although these are two phases or aspects of comprehension the average of the grade scores (or age scores) for the two tests gives a good indication of the pupil's general ability in reading comprehension. If both the *Gates Reading Survey* comprehension test and some or all of the *Gates Basic Reading Tests* are given, in order to determine the pupil's ability in various aspects of comprehension, they should all be averaged to get a rough measure of the pupil's

general all-round ability to get the thought in the course of reading.

4. *Informal test for comprehension in reading longer selections.* It will be noted that in all the preceding tests comprehension is based upon the pupil's ability to understand the content of a paragraph except in the *Primary Reading Test*, Type 2, Sentence Reading. None of these tests, in other words, measures directly a pupil's ability to comprehend longer selections. The correlation between most of the tests, especially at Grade 3 and higher levels, and comprehension of longer selections is quite high, but in careful diagnosis it is often desirable to determine the pupil's ability to comprehend longer selections. This may be done informally in the following way.

Choose one or more selections, the length and complexity of which the teacher regards as reasonable or critical at her grade level. For example, in Grade 3 a story more or less similar to those found in a children's collection of stories, or in a typical magazine such as *Story Parade*, could be used. In a later grade a longer and more complex story might be chosen. The pupils may then be asked to read the story as they ordinarily would read one for pleasure. The teacher should prepare a series of comprehension questions of any one or more of the types suggested later in this chapter. These questions are handed to the pupils after they have completed the reading and they are asked to mark the answers. The teacher then scores the responses and determines the number correct for each child. Needless to say, these questions or problems should be the kinds which really test the pupil's comprehension with a degree and thoroughness that is regarded as reasonable for children to achieve after one reading at this grade level. The scores for the various children may then be tabulated and studied. They may be considered on two bases. First, the teacher may herself decide what she regards as the score representing a reasonable degree of comprehension. She may then note what children equal or exceed this score. These would be children whose comprehension she would therefore rate as satisfactory or better. She will then study the scores below the critical one. Those who are only slightly below may be regarded as, practi-

cally speaking, satisfactory. Those that are quite far below this level would be regarded as revealing an unsatisfactory degree of understanding. They are the pupils for whom additional help is needed.

The scores can be interpreted in a relative sense without setting up any particular critical score. The teacher in this case sees who are the best in comprehension, who are next, and so on down to those who are the poorest. Obviously, those who get the lowest scores are most seriously in need of assistance.

Instead of using a story the teacher may use an informative selection of any type she regards as important. For example, in the fourth grade she may be interested in seeing how well the pupils can understand a chapter in a book on the social studies after one reading. She then gives them a set of comprehension tests, the difficulty or detail of which are reasonable for use after one reading. The scores may be reviewed and interpreted as suggested above.

For examining particular children selections of other lengths and levels of difficulty may be chosen. For example, a teacher may be interested to see how well a very able child can understand a book the difficulty of which corresponds to two or even more grades in advance of his grade. With a poor reader she may wish to try out selections that are shorter and easier than the average ones employed in his grade.

In some or all of these cases the teacher may be interested in seeing how much more thorough understanding is evidenced after a second or even a third reading of the same selection. In such a case, after the test suggested above is completed, the pupils are asked to read the selection again and then take a second comprehension test provided for the purpose. The second or third comprehension test might reasonably be more searching, more detailed and subtle, than the first one.

Further Diagnoses to Determine the Causes of General Backwardness in Reading Comprehension

The standardized tests mentioned above yield a grade (or age) score. The informal tests may reveal how much the pupils are above

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or below what the teacher regards as a reasonable standard of comprehension for her grade. In the typical class the children will show a wide range of ability. Among them will be some pupils very much below the performance of the grade. The first step is to note the grade scores themselves and to compare them with the actual grade status. For example, a child whose grade position is 4.0 may be regarded as probably definitely retarded if his grade score on the average of the comprehension tests is 3.0, and quite markedly retarded if the grade score is 2.0. A child at the middle of the second grade is somewhat retarded if his comprehension grade score is 2.0, distinctly retarded if it is 1.6, and very seriously retarded if the score is 0, even if some achievement is shown on the Sentence Reading Test. In other words, the first step is to consider the extent to which the pupil's score on the comprehension test or tests exceeds or falls below his grade level. If the grade score is markedly lower than the grade position in which the pupil is trying to function it is obvious that a more thorough diagnosis to determine the causes of this retardation is called for.

Causes of Backwardness in Reading Comprehension

Following are briefly mentioned some of the major causes of backwardness in comprehension of all types.

1. *Inferior general intelligence.* The pupil's backwardness in reading comprehension may be due primarily to low general intelligence. As stated in Chap. 4 it would be highly desirable, if possible, to give such pupils the Stanford Revision of the Binet test or some other similar individual test depending primarily upon oral activities. The pupil's mental age in such a test may be converted into a mental grade score following directions given in Appendix 2 and the mental grade score directly compared with the pupil's reading comprehension grade score, or, if preferred, the reading comprehension grade score can be converted into a reading comprehension age score, and compared with the mental age. If the mental grade score (or age score) is higher than the comprehension grade (or age) score, the indication is that the

backwardness in comprehension is not due to general intellectual retardation. If the two are about the same, there is of course the suggestion that this pupil is comprehending about as well in reading as he is in listening, since the Stanford-Binet and other similar tests are based, in large measure, upon problems based on comprehension of spoken language. In these cases the chances that the reading comprehension level could be rapidly and greatly increased by specialized remedial work are not so good as in cases in which the mental grade excels the reading grade. It is better, however, than in those cases in which the mental grade is lower than the reading grade. In the latter, there is the suggestion that the pupil has been taught more successfully than the average child and that he is, in comparison with his oral understandings, doing very well in reading comprehension.

If the Binet or a similar test cannot be given, the teacher should attempt to size up the pupil's understanding of stories, directions, and other informative materials given orally. She should observe the pupil in the class discussions on various occasions, especially those which follow the reading of a story or the making of reports, and judge as best she can the pupil's probable comprehension of material presented orally. If she feels that his understanding of oral material is well in advance of his ability to understand the printed content, she will have a reason for making a more thorough examination to determine the causes of backwardness other than general difficulty in verbal comprehension.

2. *Poor reading vocabulary.* The pupil's status in the tests of comprehension of printed sentences and paragraphs should be compared with his status in reading vocabulary. A test of word recognition is provided in the *Gates Primary Reading Tests*, the *Gates Advanced Primary Reading Tests*, and the *Gates Reading Survey*. Certain details about these vocabulary tests were given in Chaps. 4 and 8. If the pupil's grade score, for example, on the Word Recognition Test exceeds his grade score on the Paragraph Reading Test, it is indicated that the status in reading comprehension is not due to any special limitation in recognizing and getting the meaning of the individual words. If, on the other

hand, the pupil's score in the Word Recognition Test is "low" or "very low" in comparison with the paragraph-reading score, the probability is that paragraph comprehension could be improved by increasing the pupil's ability to recognize and get the meaning of isolated words. He may be missing the meaning of a sentence or paragraph because of the frequency with which he fails to get the meaning of words within it. If the score on the Word Recognition Test is about the same as that in the Paragraph Comprehension Test the indication is that neither requires intensive work more than the other. They are about equally good or equally poor, as the case may be. If the scores for word recognition and paragraph reading are both poor the indication is that the weakness is widespread, involving both word recognition and the techniques of comprehension.

In cases in which the reading-vocabulary or word-recognition scores are relatively low, the whole program of diagnosis and remedial work suggested in Chaps. 7, 8, and 9 should be considered, since one way, and perhaps a very important way, of increasing reading comprehension is to enrich and enlarge the reading vocabulary and to improve the techniques of word perception.

3. *Difficulty in the mechanical techniques of reading lines and paragraphs.* Children may occasionally be found who have not learned how to progress along the line or jump back to the next line. Among these may be children who have done very well in learning to recognize individual words. Their difficulty should be explored and suitable instruction provided.
4. *Overemphasis of word recognition with resulting neglect of context clues.* Twenty-five years ago one not infrequently found instances in which so much emphasis had been placed upon word recognition, and on correct pronunciation and articulation that the pupil's mind became primarily centered in these processes with a resulting neglect of the meaning. The child may have depended primarily on visual and auditory analysis of bare word forms and very little upon context clues to work out the recognition and pronunciation of words. He may have been so completely occupied with expression and pronunciation in oral read-

ing as to be able to pay little or no attention to the thought. This is especially true in schools in which little time was given to discussion of or otherwise using the content. These children may have carried over to silent reading the preoccupation with the mechanics of word recognition and pronunciation and not directed themselves primarily to getting the thought. As time went they may have lagged more and more in the use of context clues and in the very complex and subtle processes involved in getting a full and clear idea of the meaning. These cases are relatively rarely met in schools today. They are sometimes found, however, among the children who started poorly and who have been given one of the very formal, analytical types of remedial program. The teacher should be on the lookout for these rare cases for whom reading has primarily meant merely correct word recognition and word calling. With such children unusual efforts may need to be made to change their attention from word recognition to thought-getting. They may need to be taught how to guess words from the context.

Methods of Improving Reading Comprehension in General

In this section will be given a number of suggestions for the improvement of all forms of reading comprehension. These are suggestions which apply equally well to ordinary classroom instruction and to remedial work. They apply to those pupils whose retardation is general; that is to say, those pupils who are backward in reading comprehension as determined by averaging several of the tests of comprehension of sentences, paragraphs, or longer selections. The principles will apply also to those cases whose retardation is of a special type, for example, the pupil who is markedly retarded in reading to get the main idea, even if he is average in reading directions or reading to get details. They would apply to the pupil whose difficulty is that of comprehending very slowly in comparison with the average child and to other pupils whose comprehension is good at a very low level but who have difficulty when the material becomes complex. They are, in other words, general methods, devices,

and procedures. In some instances, variations would be advisable where the limitation is highly specific. For example, if the principle is "Find the optimum level of the material for the particular pupil and supply an abundance of material on that level," the application would be somewhat different in the case of the child who comprehends very well as long as the material is very simple but who is relatively retarded when it is more difficult, as compared to the child who is about equally retarded in reading materials of different levels. These particular adaptations of the principles will be pointed out later in connection with the discussion of developing some of the specialized phases of reading comprehension.

1. *Choose the most interesting and challenging material possible.*

Some children fail to make satisfactory progress in reading comprehension because the material seems to them to be far less interesting and challenging than the content they can get in oral form from the teacher or parents or other relatives, or from the radio, the movies, or the comics. Unlike the situation of a half century ago, in which many children had to get their stories and other verbal material primarily from books and not from radios, phonographs, movies, and comics, the child today has a wealth of other resources at his command. He may have been getting an abundance of exceedingly, even excessively, thrilling episodes from the radio, movies, and other sources long before he came to school. In the initial stages of reading he may have found what he got from reading was rather pallid and trifling in comparison with what he could easily get from other sources. The competition which reading material faces is now very great. The teacher must exercise every ingenuity to secure for the pupil material that will challenge his interest in order to convince him that learning to read is worth while. It is necessary to do more than merely to convince him that reading is worth while. He must somehow be provided with really interesting material on which he can spend considerable time. For the slow reader efforts should be made to get material which in liveliness, variety, humor, adventure, and in other appealing qualities compares favorably with readily available oral material.

2. *The pupil should be introduced from the beginning to a variety of types of reading.* He needs an abundance of interesting stories of many sorts, but in addition he should be introduced to the types of material which give him useful information, which enable him to do things he would otherwise find difficulty in doing, ideas that can be conveyed to other people, and utilized in a variety of projects. If possible, he should have materials that correspond to the books of fiction which the adult reads, as well as short stories; brief, humorous anecdotal materials; all types of informative materials; descriptions of attractive objects in catalogues, and so on.

Interesting and thrilling news, such as announcements of a picnic, should be put in printed form so that the pupil will learn that many of the best things can be secured by reading. Magazines for the child should have the same appeal as they do to adults. The newer types of newspapers which may now be secured for all grades, even the first grade, often give the pupil a sense of the dignity and importance of reading. For ordinary schoolroom use, especially for remedial work, all sources of information about new, highly interesting materials of all sorts should be carefully studied by the teacher. The highly skilled remedial teacher is one who can capitalize on new and interesting selections in a wide range of types of content.

3. *Find material suited to the child's special interests.* In Chap. 1 the fact was mentioned that rich returns may sometimes be secured in interest and effort by finding reading materials that are related to a child's special interest or hobby. Classroom instruction can usually be organized to permit each child to specialize in the area of his outstanding interest. For example, if one child is greatly interested in airplanes and another in farm life, each can be helped to find the materials related to his particular topic and to the work of the class as a whole. If reading can be the means of pursuing the hobby and achieving prestige by reporting to the class and otherwise serving as a specialist it is likely to be recognized as a really useful tool. It is not suggested

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that the program be confined to an area of special interest but only that reasonably full play be given to it.

4. *Provide full opportunity for pupils to discuss, report, and otherwise use what they have learned.* Interest in reading is fostered by giving the pupils ample opportunity to display to others what they have gained from reading. In this way reading becomes less an isolated, nonsocial activity and more a means of providing an opportunity for a fuller intercourse with other children. The reading program should therefore give the pupils many opportunities to tell others what they have read and to read selections which they think would have interest for others. Some children enjoy reporting to the class a review of the book with recommendations that others read it. They should be encouraged to raise questions about things that they do not understand, to present illustrations, or to tell their own experiences related to the story.

A distinction must be drawn between providing pupils with an opportunity freely to report on any selection they have read and the demand that they tell the story in their own words or give an appraisal of it, or read some of the interesting parts, as a part of a formal school exercise. In a study by Lazar¹ it was found that many children reported that they really did not care very much for reading because all their reading was hard work. These children read mainly their textbooks in the various subjects in school, most of which were very difficult for the poor readers. Many of them reported that even if they were allowed to read a story freely by themselves they were shortly called together to be examined on it. While they were reading they were thinking of the questions that might be asked, laboring in an effort to organize a report or select an attractive bit. The reading process itself was unfavorably colored by anticipation of the exacting formal activities to be contended with in the following reading lesson. It is one thing to provide a pupil

¹ Lazar, May A., *The Reading Interests, Activities, and Opportunities of Bright, Average, and Dull Pupils*, Teachers College Contributions to Education No 707, Teachers College, Columbia University, New York, 1937.

full opportunity to report when he wants to report, and to report what he wants to report; it is quite another thing to arrange formal periods in which rigid analysis and examinations are to take place. In this connection a number of "don'ts" may be listed for dealing with the pupil who is retarded in comprehension.

Do not insist that a child always report what part he likes best or what part was particularly difficult.

Do not insist that a pupil remember with any exactitude most details. If a child is reading for recreation, just for the fun of it, he may be oriented so as not to remember any of the detail. To force him to do so may make it impossible for him to read freely as a typical adult would read when he takes up his magazine or book of fiction in the evening. Even in the upper grades, in dealing with the retarded reader, do not set up the expectation that the pupils will always be able to discuss characteristics of structure, style, or development of plot. In general, this is a very difficult type of analysis which only a small percentage of the brightest pupils can do with success. These characteristics are an almost complete mystery to some of the slower learners.

Give the pupil an abundance of opportunity to read in which no checkup on his knowledge of words, of facts in the material, or any other characteristics, is made.

5. *Provide abundant opportunity to carry what is read into other types of action.* Some children, especially vigorous and restless boys whose verbal aptitudes are not outstanding, find reading to be a rather restricted mental activity. Ample opportunity should be provided without formal pressure for children to put their reading to work in some tangible fashion. This is especially true of informative materials. If a program is arranged so that the pupil can pursue some follow-up activity, greater zest may be realized. For example, if the pupil is reading a selection about farm life he may be given an opportunity to construct in miniature or draw and color pictures of a farmhouse and animals, make an arrangement for displaying and selling typical vegetables, secure soil and other materials with which to grow some of the products, or organize a week-end trip to a farm. Zest during the

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reading may be heightened by anticipation of more vigorous related activities to be pursued later.

For some children an opportunity to arrange a puppet show or to dramatize one of the episodes in a story or to work up a radio address or prepare a display in the schoolroom or a catalogue of products to be put on sale, will help make reading be a more lively and important activity.

6. *Provide an abundance of the most attractive supplementary materials and arrange a schedule to make free reading possible.* The importance of having a good classroom library as well as a good school library; of arranging attractive displays of all kinds of reading matter on a reading table; of preparing a schedule to give each child abundant opportunity to read exactly what and how he desires; of providing an attractive selection of reading materials at home and of scheduling a period free of distractions for voluntary reading was discussed in Chap. 1. These are requirements of all remedial work. This is especially true of the pupil whose reading comprehension is low and whose interest in reading is not very sharp. The most important feature of the program of improving comprehension is that of providing every possible inducement and opportunity for more extensive reading done on the pupil's own initiative. It is practically impossible to *force* the pupil to read extensively for any length of time; he must be *induced* to do so. The good readers are almost invariably children who find time for it and have opportunity to read a great deal by themselves. While it may be true that they have read much because they liked to read, it is usually equally true that they have learned to read very well because they have read extensively as part of their own recreation.
7. *Organize various reading and related activities in topical units that continue for some time.* During the last fifteen years the method of organizing the basal reading program under topical units instead of taking up in miscellaneous order a series of unrelated selections has become popular. Experiences with this method have, in general, indicated its great value in making reading easy, more rich, and more satisfying. The plan is to

select a topic of outstanding interest, such as a visit to the country or to the city or to the circus, or child life among the Indians. The topic should be one which has educative value and which can be developed within the limitations of the interest and understanding of the pupils. It should be, furthermore, one which lends itself readily to activities of the linguistic, dramatic, artistic, constructive, and exploratory type.

The topic is typically prolonged sufficiently to provide opportunity for plenty of visits, discussions, the arrangement of dramatic episodes, preparation of display materials in the school, and often the planning and execution of a day of activity in which the unit is brought to a culmination. At this final stage, each child participates in one or more ways of special interest to him. Some participate in the musical program, some in a dramatic episode, others as demonstrators of equipment and apparatus, others in reading stories, reciting verse, demonstrating activities carried on or costumes worn. Some children may prepare original stories or booklets of illustrations with accompanying explanations. Others may secure and arrange typical products, as, for example, a variety of farm products. Bulletin-board announcements, illustrations on the blackboard, drawings and paintings, stories and other selections found in the library or elsewhere, may form part of the display, and still pictures or motion pictures may also be introduced.

The merit of such a plan is that it provides a wide range of activities sustained long enough to permit interest to develop and flourish into a variety of lines. Specialization to suit individual interests and opportunities for the exercise of every individual talent can be provided.

This type of organization under topical units is now quite familiar in the teaching of reading. The fact should not be overlooked that the features which have made the plan successful in classroom activity may, for the most part, be utilized in remedial work. In fact, highly effective supplementary and remedial work may be carried on in connection with the regular classroom topic merely by giving special attention to selecting the right material and suggesting the most attractive collateral activities for the retarded reader to carry

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on. Even if the poor reader cannot handle the basal textbook material, simpler selections bearing on the same topic may be found. The mere fact that these materials are different from those used by other members of the class gives the poor reader a special opportunity to report them to the class.

Devices for Stimulating, Guiding, and Appraising Comprehension

In the preceding section it was stated in substance that the long-time improvement in comprehension of reading can be secured only by arranging situations in the school and in the home which permit the pupil to learn to enjoy reading and actually to read extensively. One of the major purposes is to get pupils to read merely for the fun of it without saying anything to anyone or reporting any characteristics or details about it.

This is a primary object. Once the child has started reading voluntarily he can be assisted to increase his ability to comprehend. Certain types of devices may be employed to encourage, to guide, and to check up on the pupil's comprehension. Properly used, these will not dull the pupil's interest but, on the contrary, increase it. They will help the pupil to acquire subtle and tangible techniques that are involved in reading for the purpose of comprehending in the best possible way and to the best possible degree for each of several realistic purposes.

Many children have difficulty with comprehension because they do not know exactly what to read for and how to try to comprehend. They lack a definite standard against which to measure their own understanding. Sometimes the difficulty is due to the fact that the questions and problems presented in class are so easy that they do not stimulate them or so difficult that they produce a sense of failing in almost every session. Both of these discouraging features may be eliminated by preparing comprehension exercises to fit the needs of the particular child.

In the preceding section the teacher was warned against making too formal use of comprehension questions, reports, or evalua-

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tions. Where there is a need for intensive or remedial work this difficulty can be avoided by certain precautions. First, the teacher should avoid using comprehension or other checkups for a substantial portion of the pupil's reading. Let a large amount of it be entirely free and unreported except where the pupil himself desires to render an account. Second, the teacher should use the comprehension questions in special work-type reading activities which are recognized as forming only a definite and limited part of the program. Third, when the comprehension exercises are used, the teacher should exercise care to employ them solely for the purpose of enabling the pupil to improve his own understanding; she should avoid any incidents that would embarrass him when he makes mistakes and frequently leave the entire enterprise of checking the adequacy of the response to the pupil himself. The pupil will often welcome an opportunity to try out and diagnose his ability to get ideas from reading, provided it is impersonal and provided the making of mistakes does not subject him to the scorn of the teacher or the ridicule of other pupils.

The pupil can be helped to improve his comprehension in reading if he is provided with certain kinds of comprehension checks or exercises which indicate the kind of understanding that one should reasonably be expected to achieve and which provide an appraisal of the extent to which one has succeeded in meeting these objectives. These exercises may take many forms. It should be understood that the use of comprehension questions and other devices to be suggested presently is not recommended as a substitute for the wide, free reading and the rich program of class activities suggested in the preceding section. These exercises are suggested, on the contrary, for use only part of the time. They may be closely related to the materials used elsewhere or they may be prepared on independent topics or unrelated activities.

Exercises for Pupils Deficient in Sentence Comprehension

We shall begin by suggesting exercises for children who have difficulty with the simplest form of connected material, namely,

Exercises for Pupils Deficient in Sentence Comprehension

sentences. These exercises will, of course, be chiefly used in the primary grades for children who, after spending some time in the regular classroom, are found to be deficient on test Type 2, of the *Gates Primary Reading Test*, or in some other test of sentence understanding.

Directions to Be Executed Actively. For the pupil who has difficulty understanding even the simplest sentences, work may be carried on by means of directions each of which comprises a simple sentence. They should be made up from words already familiar. They may be printed on cards and exposed one at a time or written on the blackboard or typed on strips of paper or in a column on a sheet of paper.

Such sentences as the following may be used:

- Find the box.
- Put the box on the table.
- Get the book.
- Put the book on the table.

The exercises may be made in semiconnected form so that the pupil may carry them out one after another without immediate guidance of the teacher, who can estimate closely the accuracy of the pupil's comprehension by looking over the layout when the work is completed. Following is a sample of a part of an exercise of this type.

Playing Store

Play that your table is a store. Put some pencils on the table. Put some flowers on the table. Put two apples on the table. Bring the paper dolls to the table. The dolls have come to the store to buy. One doll wants to buy the flowers. The cost is ten cents.

A variety of cut, color, and draw exercises are very useful for giving practice in sentence comprehension. A few samples will be shown here and others used with deaf children are given in Chap. 16.

- Color the big tree green.
- Color the little tree yellow.

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Draw a line under the child sitting under the big tree.

Draw a line around the boy flying the kite.

Draw two lines under the girl.

Directions to draw pictures can be made up at any desired level of complexity. They may contain several sentences and comprehension is checked by a glance at the picture. For example: *Draw a picture of a cat. Make a nice fire for the cat. Put some black spots on the cat's back. Draw a cup of milk for the cat.*

Picture-Checking Exercises. Sentences may be prepared for each three or four pictures that may be drawn on paper or hectograph or drawn on the blackboard or selected from magazines and pasted on heavy paper. A sentence is shown which is illustrated by one of the pictures. The pupil reads the sentence and points to the correct picture. This is followed by another sentence whose meaning is indicated by selecting the picture appropriate to it.

Phrase-Checking Exercises. In this case a single picture is presented which illustrates one of a series of sentences. The pupil is to look at the picture, then read the sentences and check or otherwise indicate the one which goes with the picture. Below are two examples.

Which Is Right?

This house is in the city.
This house is on the farm.
This boy is a little boy.



This wheel is on the airplane.
This wagon is at the farm.
This wagon is in the city.



Exercises for Pupils Deficient in Sentence Comprehension

Dictionary Cards. The dictionary cards, an illustration of which is given on page 262, are also useful. These dictionary cards consist of several sentences in which all the words except one are familiar. The pupil's task is to read the sentence and try to use the thought to give us the new word. The task of course is somewhat harder than reading a sentence which contains no new word, but the presence of an unfamiliar word stimulates effort to use the context and gives the child a feeling of satisfaction when he does figure out the new word. Pictures may sometimes be used to give additional clues to the meaning.

Question and Answer Exercises. Sentence reading may be stimulated by exercises in which the pupil is given the ideas first by means of telling him the facts or reading him a story or showing him a picture and then presenting to him a series of questions or statements which he is to answer in the light of the data given. For example, the teacher may tell a story about a runaway calf and then give him to read such questions as "Was the calf afraid? Why was the calf afraid? Where did the calf run? How did they catch the calf?" These questions may be answered orally.

The questions may be put in the form which permits them to be answered by saying "yes" or "no" or marking either of these words in the exercise. For example, questions like the following may be prepared in printed form or written on the board. In this exercise no previous selection or story is read and the pupil is expected to answer the questions on the basis of familiar information.

Do dogs swim?	Yes	No
Is milk white?	Yes	No
Is fire cold?	Yes	No
Should children drink milk?	Yes	No

The words *true* and *false* or *right* and *wrong* may be used instead of *yes* and *no* for variety. Exercises of these types may be carried out in various ways. For example, the pupil may be given a series of cards on each of which is typed the question. He reads the cards and puts them in two piles, one a pile of true and the other a pile of false statements.

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Sentence Completion Exercises. In this exercise part of the sentence is given and the remainder must be selected from words or phrases conveniently arranged. For example, the exercises may take this form:

1. Betty was in the _____ : playhouse
2. "I will call Tom," said _____ : Betty
3. Tom and Betty found a _____ : rooster
4. The rooster said _____ : "Cock-a-doodle-do"

Such exercises can be mimeographed or typed on a sheet of paper or presented on cards. The words to be chosen could also be typed on the same sheet, as shown above or placed on cards and placed before the child so that he can easily select the ones which he chooses.

Other forms could be used. For example:

1. The cows were going _____ across the road.
_____ across the river.
2. The boy had _____ two cats.
_____ three balls.
3. The old man said: "It is hot."
"It is cold."

Selection Exercises. In this exercise a statement is made or a question is asked. From two to four possible answers are given. The pupil is to select the right one.

1. What did Mary do? She came.
She rang.
She sang.
2. The little dog said: "I will go."
"I will not go."
"I will eat you."

Combination Exercises. Needless to say, a variety of these devices may be included in the same exercise, as, for example, in the one reproduced below, which includes questions, sentence completion, and direction activities.

Exercises for Improving Comprehension of Paragraphs and Larger Units

Practically all the types of comprehension exercises suggested for increasing sentence comprehension may be employed in improving the comprehension of paragraph or longer selections. The typical procedure is to provide the pupil with a selection to read silently. After he has finished the reading, exercises may be provided for checking up on his comprehension.

The comprehension exercises may be used in an oral discussion. Thus the teacher may ask questions which the pupil is to answer in any one of several ways. The questions may ask for a series of details which together comprise the points of the story. The questions may be asked one at a time and the pupil may answer by giving a word or a sentence. The teacher may ask the pupil to give the main points or "Tell me in your own words what the story is about," or put it in some other form. Activities of this sort have the advantage of enabling the teacher to observe directly and fully the character of the pupil's understanding and his difficulties and to throw out suggestions as she goes along. In a face-to-face relationship she can reread sections to clear up points or ask the pupil to reread the pertinent parts. Successfully handled, nothing exceeds in value such a face-to-face discussion of what the pupil has read. The disadvantage of the plan is, of course, that it takes a good deal of the teacher's time. In any remedial work, however, provision should be made for much individual oral working together of the pupil and teacher.

Additional exercises may be set up in which the pupil reads a selection of suitable length and then does a series of comprehension exercises by himself. These exercises may be essentially the same as those recommended above for sentence comprehension. If the selection involves directions or a description of some situation or activity the pupil may be asked to act it out or to diagram it or draw a picture of it or complete and color a picture or arrange some series of objects to convey the meaning. In other cases, pictures may be

provided from which he is to select the ones which best illustrate one or more paragraphs or longer selections which he has just read. If the selections form a continuous account, the pictures may be arranged in order.

The exercise may consist of questions which are to be answered by checking the appropriate word or phrase, writing a word or a sentence, checking *yes* or *no* or *true* or *false*. Completion exercises of the type shown on page 400 may also serve the purpose. The selection type of exercise is readily adapted to use as a test of comprehension of a paragraph or longer selection. This may take the form of a sentence partly given which the pupil is to complete by selecting the correct phrase or word or it may take the form of a series of sentences or even paragraphs only one of which is correct. For example, after reading the selection the pupil may be given three sentences, as follows:

The men built a big store.

The men moved the tool building.

The men refused to work.

Pupils who are relatively poor in paragraph comprehension must be first given an abundance of experience in getting the essential thought from relatively short and easy paragraphs. The paragraphs should then be increased in length and complexity until the pupil can handle more complex ones. It should be understood that by more complex paragraphs we do not mean paragraphs made more difficult by including a large number of unfamiliar words or embodying the ideas in abstruse or complicated form. We are speaking at the moment of increasing the span or range or amount of ideas which the pupils can understand and retain during the course of reading. In encouraging him to learn to comprehend longer selections, involving more ideas, great care should be exercised in the initial stages to maintain the most helpful organization and structure. One should avoid including too many unfamiliar words. Thought should be kept clear and simple and the cumulative relationships of meaning should be made as definite as possible. The pupil must first learn to increase his span or range of comprehension

Exercises for Improving Comprehension of Paragraphs and Larger Units

in the easiest material. Later the material may be made more complex as well as more lengthy and inclusive.

Simple materials, then, may be offered in paragraphs of increasing range. After fairly long paragraphs can be understood selections embodying several similar paragraphs should be introduced. These units may be made longer and longer, telling a story of an increasing number of episodes and events. Teaching must keep pace with the pupil's progress. Larger and larger units of material may be introduced as rapidly as the pupil can master them, but they should not at any time be so long as to invite confusion and failure. Often, especially in dealing with poor readers and the less intellectually gifted pupils, considerable patience must be exercised to avoid moving ahead too rapidly.

A good method of enabling a pupil to succeed in reading a longer selection is to secure selections which can be divided up into parts. The pupil may begin by reading one paragraph or as many as he can grasp in a single reading. If possible the material should be organized so that reasonably definite and complete units correspond quite closely to his range of understanding. He then reads the first unit and reviews it by discussing it with the teacher or making out comprehension questions which are then surveyed by the teacher or merely by thinking it over himself. In this way he gets the content of the first unit quite thoroughly in mind and thereby secures a more thorough background of understanding for the next unit. He then takes the next unit, recalls it, and reviews the first two units. He next takes up the third unit and so on to the end.

By such a device the pupil reads as much as he can grasp and retain in one reading. Then by reviewing the material at each stage he is able to extend the amount which he can get into his mind at once. By reviewing all that has gone before and reading the next selection in the light of it, he is learning—not without additional work, of course, but nevertheless learning—to deal with longer and more comprehensive organizations of thought. By continuing in this way, the pupil will learn to include more and more in a single reading and incidentally learn some of the devices of rereading

which enable him to get in mind and in organized form increasingly extensive selections. He learns also the technique of reviewing parts of a selection to remove obscurities, revive fading memories, knit up poorly organized connections, and to secure impressions which depend upon the selection as a whole.

The same device may be used for reviewing series of materials not so closely knit together as any one story or any one informative selection. If the pupils are following a topical organization and have read a number of selections related to the same topic during a period of several days or weeks, the articles may be gathered together for a review and a comparison. For example, if they are using a basal textbook which contains six different selections, both story and informative materials on the topic, "Early Days in America," they may have a period for reviewing and reconsidering all of them. Comprehension questions or problems may be given in oral or written form, or there may be free discussion in which the pupils themselves attempt to bring forth and organize the main ideas. In working with a retarded pupil the teacher may ask for a free report of what the pupil can remember of different selections and then by sagacious suggestions or questions get the pupil to compare one selection with another. The pupil may be asked to indicate which selection he liked the best and why, which were most important, what statements seemed to be in conflict, and what the main findings of the entire offering are. He may be encouraged to try to give an oral or written report summarizing or outlining the most important ideas secured from different selections which bear upon a particular topic or problem.

This, of course, represents an extension of comprehension beyond the range of an individual story or informative selection. It will be noted that in general the technique here suggested embodies most of the features comprising effective study techniques as used in later grades and in high school and college. Children can and should make a beginning in learning all these techniques in the first grade and expanding them gradually in range and complexity as they continue in school. The author has found children in the third grade who were more skilled in the techniques of preparing, appraising, syn-

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thesizing, reviewing selectively, and otherwise assimilating and appraising several selections at once than some very retarded high school pupils. In the average case, these abilities improve from year to year.

Diagnosing the Level of Comprehension

By the "level of comprehension" is meant the highest degree of difficulty or complexity in a passage which a pupil can comprehend. Some children can comprehend very accurately, rapidly, and thoroughly materials of typical second-grade level but are unable adequately to get the ideas during reading of materials of higher level. Other children in the same class may be able to read with satisfactory understanding materials of third or fourth or even higher grade level. In teaching it is important to know how difficult and complex a passage a particular child can read with a reasonable degree of understanding.

To determine how advanced or complex a passage a pupil can comprehend satisfactorily, it is necessary to try the child out on a series of passages beginning with very easy ones and advancing to more and more difficult ones. The pupil is allowed in such a test to begin at the lowest level and advance as far as he can. Thus a test of level of comprehension can be recognized by the fact that it consists of selections graded in difficulty.

It was stated that the level of comprehension is determined by finding the most difficult or complex passage which a pupil can comprehend "satisfactorily." The question naturally arises, how accurate and thorough and detailed must the comprehension be in order to be regarded as "satisfactory"? One might take a particular passage and after the child has read it present him with questions which require only very superficial understanding. He might answer these questions correctly and fail on other questions which require a deeper or more thorough or more detailed understanding. It is obvious, therefore, that the level of comprehension which one would find in a test depends upon the nature of the comprehension questions or exercises.

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In the case of a standardized test, such as the Gates tests, the standard of thoroughness regarded as "satisfactory" has been determined by the maker of the test. He has provided questions or other types of exercises and stated what answers or responses are regarded as right or acceptable and what ones are regarded as wrong or unacceptable. A standardized test, then, determines the level of complexity of a passage that can be comprehended with a stipulated degree of fullness, accuracy, or thoroughness. In interpreting the results of the standardized test the teacher should herself study the exercises in relation to the paragraphs in order to get as good an idea as she can of the amount and kind of comprehension that is really measured by the test. By doing so, she will understand better the significance of the pupil's grade score on the test. For example, if his grade score is 4.5, she will be able to determine approximately the complexity of the material which the pupil was able to comprehend with a degree of thoroughness required by the comprehension questions. If this degree of thoroughness is regarded by the teacher as rather more than is necessary in much of the pupil's work, she may assume that he could understand somewhat more difficult material in a less exacting or thorough way.

In testing the level of comprehension it is advisable to eliminate the influence of speed of reading as much as possible. This means that the test should not be done under a strict speed limit. Either there should be no time limit or, as in the case of the Gates tests of Level of Comprehension, the amount of time provided should be sufficient to give all or practically all the pupils as much time as they can profitably use. If the time limit were short the very rapid reader would perhaps not be limited at all, whereas the very slow reader might not have time to reach passages as difficult as he could understand. In the latter case the test would really be a test of speed of reading rather than of level of comprehension.

Standardized Test of Level of Comprehension

The Paragraph Reading test in the *Gates Primary Reading Test* is really a test of level of comprehension. It begins with very simple

Standardized Test of Level of Comprehension

paragraphs and moves on to paragraphs of increasing complexity. The time limit is so generous that all save excessively slow readers will have all the time they can really use. In the *Gates Advanced Primary Reading Test* the Paragraph Reading test is a similar test of level except that it goes to higher levels of complexity in the paragraphs. These tests were suggested above for measuring general all-round ability in reading comprehension. They do, in fact, provide full play to the pupil's ability to get meanings from the reading of paragraphs and they indicate the highest level of the passages at which the pupil can perform successfully. The teacher would profit by noting in the case of each child the character of the most advanced paragraphs on which his responses are largely or wholly accurate, and then noting where mistakes begin to appear.

The *Gates Reading Survey* includes a Level of Comprehension Test which may be used with children whose reading grade score is about 3.5 or higher. In the early part of the third grade this test may be used by able pupils, whereas the slower ones had better employ the *Gates Advanced Primary Reading Test*. It would be desirable, if possible, to give some children both tests.

It should be noted that the grade score obtained by the Level of Comprehension Test is really a relative measure. For example, if on the Level of Comprehension Test in the *Gates Reading Survey* the pupil gets a grade score of 4.5 this means that his comprehension on this test is about the same as that of the average pupils in the middle of the fourth grade. If his grade score is 3.5 he comprehends passages about as difficult as the average child does in the middle of the third grade. Thus a pupil's level of comprehension is really expressed in these tests by finding the grade level at which his comprehension is about equal to that of the average child. It is a relative measure. As stated above, by determining the point in the test at which the pupil begins to shift from getting all or nearly all the exercises correct to making numerous mistakes the teacher can learn much about the pupil's level of comprehension. By examining the passages themselves, she can see about how difficult a selection he can understand in the manner required by the test, as well as the character of the passages in which he begins to make mistakes.

She can thus get a rough sense of the kind of material that he can understand quite well, those in which he is doubtful and which offer quite a struggle, and those that are really quite beyond him. It is therefore worth while to examine each child's paper to get this subjective impression as well as to note the grade score.

If a pupil's reading grade score on the Level of Comprehension Test is, say, 4.5, this means that the pupil can read with average understanding material which children in the middle of the fourth grade typically encounter. If the teacher feels that typical fourth-grade materials are rather more difficult for average children at that stage than is desirable, she would be justified in choosing for most of the pupil's work materials which are somewhat easier. If, on the other hand, she regards typical fourth-grade materials as clearly easy for average pupils at that stage, she would be justified in assigning the pupil more difficult materials. The tests, in other words, are designed to guide the teacher in finding what she regards as the most suitable material for each child, not necessarily in stipulating precisely what that degree should be. In considering the class as a whole, the teacher can find which pupils can read the most complex material, which ones average materials, and which ones only the very simplest material, and she can use this information in her future assignments.

Certain steps to take in finding the explanation of a pupil's level of comprehension are indicated below in discussing the causes and remedies for deficiencies in the level of comprehension.

Informal Tests of Level of Comprehension

The standardized level of comprehension tests do not sample a pupil's ability to comprehend all types of materials or measure the level of complexity which he can understand with different degrees of thoroughness of detail. A teacher may profitably use certain additional informal tests. For example, the teacher may select passages, consisting of one or more paragraphs each, from series of books organized on a basis of difficulty. She might, for example, take a series of supplementary readers and select one or more pas-

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sages from each. These passages could consist of a paragraph or a unit comprising several paragraphs, as the teacher desires. For each she should make up comprehension questions which call for the degree of thoroughness of understanding which she thinks is appropriate. The books may then be passed out, beginning with the simplest ones, and the children allowed to read the passage and do the exercises. By correcting and scoring the answers she can get a rough idea of the books which the pupil can understand with a high degree of thoroughness, those on which he begins to make mistakes, and those in which mistakes are very common.

In individual work the teacher may have the pupil read the selection either orally or silently and then test his comprehension by conducting an oral discussion.

Although the teacher will not have norms or standardized scores to use in interpreting the results of such informal tests, she can determine the grade level of the books in the series at which the pupil can comprehend with a degree of thoroughness which she regards as satisfactory, and she can also compare with each other the pupils in her class, finding the ones who can read with understanding the most advanced books, and so on down to the books of minimum difficulty.

Causes of Limitations in the Level of Comprehension and Methods of Improving the Power of Understanding

Limitations in the Reading Vocabulary. A pupil may fail to understand a passage because of his inability to get the meaning of a number of words in it. He may have acquired the ability to analyze the printed materials and to use the meaning and other clues fairly effectively, but fail to get the full meaning because there are too many words which he does not understand. Whether this is the case or not is suggested by comparing the pupil's grade score on the Level of Comprehension Test with the grade score in the Reading Vocabulary Test, in the *Gates Reading Survey*. The Word Recognition Test in the *Gates Primary Test* and the *Gates Advanced Primary Reading Test* may be used for this purpose.

If the pupil's grade score in the Reading Vocabulary Test in any of these cases exceeds his grade score in the Level of Comprehension Test the probability is that the retardation in the level of comprehension is not due to special deficiency in getting the meaning of single words. If the pupil's score on the vocabulary test is approximately the same as his grade score on the Level of Comprehension Test it means that his level of understanding is as good as that of the average child with the same reading vocabulary. He is, therefore, in comparison with other children, not a case whose level of reading is pulled down by special weakness in reading vocabulary. If, however, the pupil's score on the vocabulary test is clearly lower than his score on the Level of Comprehension test, the probability is that his efforts to understand complex passages are thwarted, more than is true of the average child, by his limited reading vocabulary. In such a case, steps should be taken to improve the reading vocabulary by the use of methods, for example, suggested in Chap. 9. In such a case, it may be expected that an improvement in the vocabulary will bring about some improvement, perhaps considerable improvement, in the level of comprehension of connected materials.

The teacher should also be reminded that a limited reading vocabulary may be due in part to the fact that the pupil's understanding of spoken words is relatively low. In such cases, as explained in Chaps. 3 and 8, it would be advisable to give pupils in the elementary grades a vocabulary test, such as the one included in the revised Stanford-Binet test; for pupils in Grades 3 and above, the same test or the Oral Vocabulary Test included in *Gates Diagnostic Tests* could be used.

Limited Ability to Comprehend Spoken Passages. Pupils who have limited ability to get ideas from language spoken to them in explanations, in stories read to them, from radio addresses, and the like, are likely to show retardation in understanding printed materials. This ability to understand the spoken word is a very basal one in most of the individual intelligence tests, such as the Revised Stanford-Binet test. It is therefore advisable to compare the level of the pupil's understanding of printed passages with the corresponding mental age or grade secured on the Binet test. If the pupil's

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grade score, for example, in the Level of Comprehension Test is equal to or somewhat superior to the grade score in the Stanford-Binet test, the assumption would be that he is doing about as well in reading as the average child with the same Stanford-Binet mental ability does. If, however, his grade score in the Level of Comprehension Test is clearly lower than his mental grade as obtained from the Binet test, the indication is that his comprehension in reading could be pushed on to higher levels by appropriate instructional methods.

It should be noted in passing that the Level of Comprehension Test has been found to be one of the most useful means of measuring the general intelligence or general verbal aptitude of pupils whose reading techniques are reasonably good. Almost all the group verbal intelligence tests include one or more tests which are essentially the same as the Level of Comprehension Test in the *Gates Reading Survey*. The level of comprehension, therefore, would seem to be determined in considerable measure by the pupil's general verbal aptitude. It should be noted, however, that for this reason great caution should be used in comparing a pupil's grade or age score in the Level of Comprehension Test with the corresponding score on his group verbal intelligence test. Since the Level of Comprehension Test is likely to be included in the group test one is measuring much the same thing in both places. It might, therefore, be quite misleading to assume that if the pupil's grade score in the Level of Comprehension Test is about the same as his grade score in the verbal group intelligence test that one could not anticipate any considerable improvement in the level of comprehension. This could be very misleading since the difficulties and deficiencies in one test are also operating in the other.

One should, then, never conclude that it is futile to try to raise the pupil's level of comprehension in reading merely because his score in a level of comprehension test is approximately up to or even a little ahead of his score in a verbal group intelligence test. Efficient instruction in reading might raise his scores in both.

Limitations in Speed of Reading. Although, as stated above, the level of comprehension test is designed to eliminate, as far as

possible, the influence of speed and give each pupil all the time he can profitably use, the fact is that a pupil who reads very slowly and laboriously may be handicapped in interpreting difficult material. If the pupil plods along one word at a time and cannot read by thought units he is at a disadvantage in comparison with the pupil who can go over the whole passage swiftly, who can seize upon the phrases and thought units and who has sufficient speed and flexibility to look back over the material, reconsidering particular points, swiftly reviewing a sentence or two which is vitally related to the problem posed in the comprehension question. It is, in other words, likely that a pupil whose reading is slow, word-by-word reading will be helped in comprehending more complex passages by instruction which increases the speed and flexibility of his reading. For this reason it is advisable to consider the speed of reading in relation to the level of comprehension and to provide guidance in improving the speed and flexibility of reading where either is markedly retarded. On the other hand, if the pupil's rate of reading is near average, or average, or above average, the chances are that speed per se is not a factor in the difficulty in the level of comprehension, with the following exception:

It is possible that the pupil who reads everything at a very high rate of speed may suffer in more complex materials. As pointed out in an earlier discussion of speed, many persons, including high-school students and adults, tend to read complex, heavy materials with a fixed, rapid rate. In these cases, the speed is so great that the more detailed and thorough analysis of the content is made literally impossible. Where such a habit is found, it should be corrected as one of the means of enabling the pupil to read more complex content with better understanding.

Limited Experience with Various Types of Material. Now and then one finds a pupil whose difficulty on a level of comprehension test is due to the fact that his experiences in careful reading of advanced materials have been largely limited to selections within one area. For example, the pupil may read relatively little outside of school except materials dealing with automobiles and airplanes. In this field he may have built up an extensive vocabulary and learned

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to deal successfully with very complicated technical passages. He may, however, have read very little outside the regular texts and other assignments in the school in any other field. When he takes a level of comprehension test, such as the one in the *Gates Reading Survey*, he encounters on an advanced level materials from many different fields. He is unaccustomed to getting the thought from most of these areas and his score is relatively low. For such a child the main remedy would be to provide incentives and opportunities for more reading on advanced levels in various other areas.

Lack of Experience in Reading More Advanced Material. Two decades ago it was not difficult to find pupils who were rarely called upon in school to read anything except the regular textbooks, readers, and supplementary materials designed for that grade. Thus in the second grade the child's reading was largely confined to second-grade material. He encountered little, at least in school, on the third-grade level until he entered the third grade. Unless these children made up their deficiencies in reading at home, they would have had difficulty with more complex material because of lack of practice and experience in dealing with it.

Today good teaching calls for a wide range in the material in each grade. In the third grade of a progressive schoolroom will be found books and other materials from lower grade levels and from higher grade levels, some of them equal in difficulty to selections found in the junior high school. The teacher's program will be carried on in such a way, moreover, that each child is given experience in trying to read materials of increasing difficulty. Many of them need little or nothing to advance their level of comprehension except a reasonable opportunity to read more advanced material. The examiner should always be on the alert to determine whether a pupil has had such an opportunity. If he has not, immediate provision for it is an indispensable feature of remedial work.

Provision should be made in the more serious cases for trying more advanced material under careful supervision in which the teacher can offer suggestions and render encouragement. Opportunities should be made available in the school for extensive independent reading at higher levels and, if possible, similar provisions

should be made in the home. Often the parents think of their children as very young and regard it as unwise and inappropriate to encourage or even to permit them to read more advanced material. This handicap should be overcome by a conference in which the parents are persuaded to give their children the chance to develop their reading power on more advanced material.

Limitations in the Techniques of Analyzing Complex Materials. In some instances the pupil's difficulty is due to the fact that he has not as yet acquired sufficiently well some of the techniques of analyzing the content of a selection. Some of the techniques are very subtle and difficult either to describe or demonstrate. Some children, whatever their speed may be, tend to read everything in a more or less fixed, often superficial, way. They go through the material once, getting what they can by reading it in this habitual manner. If what they comprehend is inadequate to solve the problem, instead of adopting other analytical techniques, they merely reread the selection in the same way. The second reading adds little to the first except perhaps a few more incidental details. What these pupils need is to acquire the techniques involved in analyzing the material, searching out the particularly relevant elements, noting the significant relationships, and organizing the ideas into some form that can be related to the comprehension problem posed.

A program designed to secure reading and rereading for a variety of purposes, such as outlining, summarizing, solving each of several different problems, is one of the most effective ways of developing ability to understand materials of increasing complexity. Methods of cultivating the most important types of reading will be suggested in the next chapter.

Methods of Selecting Materials of a Desired Level of Complexity

Many phases of instruction in reading depend upon the teacher's ability to find materials of a desired degree of difficulty. It is quite as important to determine the level of difficulty represented by a book or article as to find the level of difficulty which the particular pupil

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can read with a reasonable degree of understanding. Both are necessary in putting into effect the best possible program. For example, a teacher may wish to provide one pupil with a large quantity of reading matter on a second-grade level. She may have in the same classroom other pupils who should read extensively on the third or fourth or higher grade levels. She may be planning to get the first child well organized on second-grade level and then begin to help him read materials of increasingly more complex character. In a typical classroom, in other words, a teacher would want to know approximately the level of difficulty of many different books, short selections, and other materials.

Determining the Difficulty of Material in the First Grade. Within recent years a number of devices have been proposed for determining the reading level of short or long selections. In the first grade and often up to the middle of the second grade, difficulty depends in considerable measure upon the frequency with which previously untaught words will be encountered as well as upon other characteristics of the material. At this stage the difficult task of determining the frequency of unfamiliar words for the class as a whole or for individual children must unfortunately be faced. Fortunately, authors of supplementary books are presenting, with increasing frequency, a list of words contained in the book. Such a list is of great value to a teacher. Where such a list is not available, the simplest method perhaps is to try the pupil out with representative passages in oral reading. The teacher can then determine about how frequently unfamiliar words are encountered and she also can see the pupil's difficulty in working them out. For most purposes, such as increasing comprehension, she will attempt to select those in which understanding is not too frequently thwarted by stops or struggles with unfamiliar words.

The Winnetka Formula. A number of formulas have been developed for determining the grade placement or typical grade difficulty of a book or selection. One of the earliest of these is the Winnetka Formula. It was developed primarily to determine the grade difficulty of a child's book. In using this formula one selects, according to a fixed procedure, a sampling of 1000 words from the

book. These words are then tabulated and two lists, one of the *common words* and another of *uncommon words* (using a method provided by the authors to make this distinction), are made. The total number of different words is also noted. In addition, 75 sample sentences are picked out at random and these are classified, on the basis of directions provided with the formula, into *simple* sentences and *complex* sentences. The three elements—the number of different words, the number of different uncommon words, and the number of simple sentences—are then put through a mathematical formula which gives a grade score, such as 3.5. This would mean that, on the basis underlying the analysis, this book corresponds to a middle-of-the-third-grade difficulty.¹

The Lorge Formula. The Lorge Formula for estimating grade placements of reading materials is derived by tabulating (*a*) the number of words in the sample, (*b*) the number of sentences in the sample, (*c*) the number of prepositional phrases in the sample, and (*d*) the number of hard words in the sample. The hard words are those not contained in a list of “easy words” provided with the directions for using the formula. In using the Lorge Formula one makes the computations on one or more samples of one hundred words each. Two samplings may be sufficient for a short story or article and ten for a full book. The Lorge Formula is more objective than the Winnetka, since the complexity of the material is determined by counting the number of sentences and the number of prepositional phrases instead of estimating subjectively the complexity of the sentences. The Lorge Formula is more useful in appraising the difficulty of shorter selections.²

The Yoakam Formula. Yoakam has recently offered a formula which is based entirely upon an analysis of the vocabulary of the selection. In using this formula one selects ten pages at approximately equal intervals throughout the book. The words in each page are given a “difficulty rating” based on the classifications

¹ *The Winnetka Chart for Determining Grade Placement of Children's Books*, by Mabel V. Morphet, Vivian Weedon, and Carleton Washburne, is distributed by the Winnetka Public Schools, Winnetka, Ill.

² Materials for using the Lorge Formula may be secured by addressing Dr. Irving Lorge, Teachers College, Columbia University, New York 27, New York.

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in the *Thorndike Teachers Word Book of 20,000 Words*. The figures representing the ratings are put through a formula which yields an estimate of the difficulty of the material. The author states that the Yoakam Formula can be used in less time than the Winnetka or Lorge. It is, however, based wholly on vocabulary and does not take into account the complexity of the sentence structure. Yoakam believes, however, that the procedure provides a satisfactory rating.¹

The actual grade ratings of the difficulty of a book or selection as obtained by these several formulas have somewhat different meanings and the formulas may yield somewhat different grade positions because they are based on different criteria. It is possible, moreover, that a particular teacher may regard a book given a difficulty rating of grade 3.5 by any of these formulas as a somewhat more difficult or easy book than she regards as most satisfactory. Precisely the implication of the grade rating obtained by any one formula is something for the teacher to judge after using several books which have been rated. Any one formula, however, indicates quite reliably the *relative* difficulty of the several books rated by it. For example, if the Lorge Formula gives a grade difficulty of 4.0 to one book, 3.5 to a second, and 3.0 to a third, it is reasonably certain that the first one is more difficult than the second and the second more difficult than the third. Thus, even though a teacher may not agree that the first book is really highly suitable for children at the beginning of the fourth grade she knows the relative difficulty of the several books.

Unfortunately, it takes some time to determine the grade placement of a book by the use of any formula. For one teacher to evaluate a large number of books for her pupils would be a considerable task. Teachers should arrange to cooperate by dividing the labor among them. Perhaps in the not too distant future, the publishers of books intended for school use will have one or more of the formulas published in each volume.

¹ This formula may be secured by addressing Dr. G. A. Yoakam, University of Pittsburgh, Pittsburgh, Pa.

References

See references at the end of Chap. 12.

Exercises

1. What tests would you use to test the comprehension of a group of children just entering the third grade? A class just entering second grade? A fifth-grade class?
2. Describe a method of testing comprehension informally.
3. Under what conditions may the teacher suspect that inferior general intelligence is not the cause of a child's poor comprehension in reading?
4. Under what conditions may the teacher suspect that a child needs help with isolated words? What score relationships between word recognition and comprehension suggest general reading weakness?
5. Justify the time spent by the remedial teacher in searching out attractive challenging materials.
6. Make a list of all the qualities you think essential to a collection of good remedial reading materials.
7. Make a list of classroom activities to which children participating in a special remedial reading program might make individual contributions.
8. In what way should the teacher show her own flexibility of approach to the different kinds of remedial reading materials?
9. Why is free reading a necessary part of remedial instruction?
10. What proportion of the remedial program should special exercises provide?
11. Examine a series of workbooks written to accompany a basal reading series. Select exercises that were written to provide a particular kind of comprehension at several grade levels. Note the differences in complexity of thought and in vocabulary among the exercises at the different grade levels.
12. Describe the general plan by which a pupil may be helped to increase the range of his comprehension.
13. Name curriculum subjects of the intermediate grades that are solely dependent on comprehension of increasingly complex reading material. In what way may oral discussion permit the teacher to estimate inadequate reading comprehension?
14. What are the dangers of overemphasizing mechanical factors in read-

Exercises

- ing? Of limiting school reading to subject textbooks? Describe a device which teaches the techniques of reading for various purposes.
15. Describe in your own words the meaning of "level of comprehension." Why is the speed factor eliminated in the *Gates Level of Comprehension Test*? Which subtests in the *Gates Primary* and *Advanced Primary Tests* are tests of level of comprehension? How is this obvious from their construction?
 16. Why is it advisable for the teacher to examine each child's paper carefully when a comprehension test has been administered?
 17. Describe several informal types of comprehension tests.
 18. What relationship between reading vocabulary scores and grade score on a comprehension test indicates a special deficiency in getting the meanings of words? What procedures are suggested to the teacher in such a case? What is the relationship between response to comprehension test and verbal aptitude? Why is the score on a verbal intelligence test necessary in interpreting a child's difficulty in comprehending reading material?
 19. Give several reasons for each classroom's containing reading materials of higher and lower grade levels rather than its actual grade.
 20. Why is it important that the difficulty of supplementary reading material should be known? Try out either the *Winnetka* or the *Lorge Formula* on a children's book of which the difficulty is not known. Are the grade ratings obtained by these formulas absolute or relative? Explain.

chapter 14 Diagnosis and Improvement of
Accuracy and Speed of
Comprehension

This chapter is devoted to a discussion of methods of diagnosis of the accuracy and the speed of comprehension during reading, and forms of instruction designed to improve these characteristics of reading. The causes and characteristics of deficiencies in accuracy and speed will also be considered.

Individual Differences in Accuracy of Comprehension

Wide differences will be found in the accuracy with which children comprehend materials read in sentences, paragraphs, or longer selections. A class of children may be assigned the same selection to read once at a normal or habitual reading rate and examined on their comprehension of selected ideas in the content. Such an examination will show that some children comprehended and recalled correctly a very much larger number of ideas than others.

Diagnosing the Accuracy and Fullness of Comprehension

If the examination is conducted by giving the pupils several alternative answers or solutions to check on each point, it will be found that many of them will indicate incorrect statements. Some make few mistakes; others many. They obviously differ markedly in the accuracy with which they understand and recall the ideas in the selection.

Diagnosing the Accuracy and Fullness of Comprehension

In Grade 3 and Higher Grades. The four tests comprising the *Gates Basic Reading Tests* and the *Speed of Reading Test* in the *Gates Reading Survey* provide means of determining the accuracy of comprehension. Each of these tests is scored by determining (a) the number of exercises or paragraphs attempted. That is, the number which the pupil has read and marked the comprehension exercises; (b) the number correct; and (c) the percentage which the number correct is of the number attempted.

The percentage score is an expression of the accuracy of comprehension. The child who comprehends 100 per cent obviously comprehends more accurately than the child whose percentage of items correct is only 75 per cent or 50 per cent.

In Grades 1 and 2. No formal device is provided in the *Gates* reading tests for measuring accuracy of comprehension in these grades. It may, however, be informally estimated by counting the number of exercises attempted, the number of these correct, and the percentage which the latter is of the former, in the case of the *Sentence Reading* test or the *Paragraph Reading* test in the *Gates Primary Reading Test* or the *Paragraph Reading* test in the *Advanced Primary Reading Test*. In these cases, however, the percentage of the exercises correct is not so clear and valid a measure of actual accuracy of the comprehension as in the case of the tests for Grade 3 and higher grades. The reason for this is that the primary test materials are arranged in order of difficulty and nearly all the children will reach paragraphs which are too difficult for them to comprehend sufficiently well to answer the exercises correctly. The test is deliberately made to operate in this way. Some children on

reaching paragraphs which are too difficult for them either because of unfamiliar words or because of the complexity of the ideas, may mark the exercises as best they can on the basis of guessing or very incomplete understanding, or they may be more conscientious and not attempt to execute the directions. The first child will appear to be more inaccurate merely because he marked the test. In the tests for Grades 3 and above the materials are all relatively easy and it is a rare pupil who marks an exercise without having read it. Those tests, in other words, do reveal the child's accuracy in comprehending materials he could presumably comprehend quite accurately if he set out to do so.

Informal Tests. In the first two grades the pupil's accuracy of comprehension can be estimated by informal individual or group tests. The individual test is better in Grades 1 and 2. In this case the teacher should select for each pupil materials of a reasonable degree of difficulty, give him a chance to read them, and then check the accuracy of his reports by asking questions. By observing the pupil's responses the teacher can estimate the degree of accuracy of comprehension.

A test could be given to the whole class by mimeographing simple material, such as a series of easy paragraphs, have them read and check the comprehension exercises also included in the mimeographed material.

In Grades 3 and above, further checks may be made by using materials different from those employed in the *Gates Basic Reading Test* or the *Gates Reading Survey*. For example, instead of using the short paragraphs, longer selections could be employed with comprehension questions which test the recall of reasonably important points in the material. Accuracy of comprehension can be checked also by using selections, either long ones or short ones, on a more advanced degree of difficulty. Thus the pupil's accuracy not only on easy materials, such as those used in the Gates tests, but also on more complex materials, could be determined.

In any grade in which there are oral discussions and other activities following the reading of the selection, the teacher can estimate the accuracy and the fullness of each child's understanding.

The Causes and Corrections of Deficiencies in Accuracy of Comprehension

Deficiencies in the accuracy and fullness of comprehension may be caused by any one or more of the factors previously considered in this volume. Factors such as inferior general mental ability or linguistic aptitude may result in a relatively large amount of inaccuracy in reading comprehension as it would in comprehension of oral language. Children subject to extreme nervous instability and other constitutional limitations may show the effects in mistakes in understanding in reading. Failures to develop adequately the basal reading skills will result in inaccuracy in understanding. For example, if the pupil's reading vocabulary is limited or if he has undue difficulty in recognizing words, if he cannot grasp words by thought units readily, if he is unable to phrase well, or if he is weak in the use of context clues and deficient in the basal features of comprehension, he is suffering from handicaps which may reveal themselves in inaccuracy in comprehension. Thus a child who is seriously retarded in accuracy of comprehension should be diagnosed more thoroughly and carefully for deficiency in all these areas. The improvement in accuracy of comprehension might, in these cases, be difficult or impossible to secure without an improvement in the faulty basal skills.

Lack of a Standard of Accuracy. Children whose basal reading skills and constitutional equipment are adequate may reveal undesirable degrees of accuracy and understanding in comprehension because they have developed no standard of accuracy or have adopted a fixed standard which is inappropriate in many reading situations. For example, sometimes the difficulty is due to the child's belief that he should remember every detail in the selection. These children may overwhelm themselves with the details and be unable to see the forest because of the trees. Some children, furthermore, set themselves too high a standard of accuracy. This is a case in which they do not become lost, but in which they set themselves to remember everything more or less indiscriminately. There are other

children who content themselves with a very superficial understanding and memory of what they have read. They are satisfied if they get even a very vague notion of what the paragraph is all about. Their understanding is so superficial that they may make errors on questions which require even a reasonable degree of fullness of comprehension.

The cure for these difficulties is to provide the pupil with a clear-cut check upon his comprehension and recall. These children should be given generous amounts of reading in which comprehension questions or other devices are used to indicate the degree and kind of understanding that are desired. For example, the teacher may give the pupil a story to read and tell him in advance that he is merely to get the main points and a general understanding of the story. On another occasion she may give an informative selection. After he has read the selection she may ask the questions orally or give them to him in typewritten form. The responses would be checked and any misunderstandings noted.

By checking on the pupil's comprehension and recall, discussing what they can remember, rereading the material to settle doubts, or to bring out more clearly points that were poorly comprehended, the teacher can help the pupil discover how accurate and how full his comprehension ought to be. Needless to say, much depends upon the teacher's skill in setting up the proper standards. In the early stages she may need to work considerably with the pupil individually and later she may depend more extensively upon the assignments of selections combined with comprehension exercises or activities which enable the pupil to get an impression of a degree of accuracy or thoroughness desired in a particular situation. He may be given a key to check his responses and encouraged to reread the material to check his errors.

One is much more likely to overlook the pupil who has set for himself an undesirably high standard of comprehension than the one whose standard is exceptionally low. The author has encountered pupils in the junior high school who read everything as if it were a last will and testament. They apparently set themselves a task of noting every detail, getting every shade of meaning, and remember-

ing it. This way of reading is sometimes developed as a reasonable response to the demands of science, mathematics, grammar, and other concentrated material in which exactness is required. To read a simple informative selection or paragraphs in a story with the same thoroughness is unnecessary and wasteful.

These pupils need to be encouraged to learn to cover the material more quickly and selectively. An habitually slow reader may find this difficult and the suggestions offered in the next chapter for increasing the speed of reading may need to be pursued. In some instances, however, good results are secured by getting the pupil repeatedly to try to do the reading more quickly and selectively and then to see how successful he is on the comprehension items. In this way he discovers that he can read material sufficiently well to get all that a practical situation demands with far less thoroughness than he has been accustomed to.

The teacher should treat with suspicion any pupil who gets a perfect or nearly perfect accuracy score in the *Gates Reading Survey* or the *Gates Basic Reading Tests*. The accuracy scores should be considered in comparison with the speed scores, that is, the total number of exercises correct in these tests. When the pupil's accuracy score is nearly perfect but his quantity score—that is, the number of items attempted—is relatively low, there are grounds for suspicions that he has not learned to adopt the level of thoroughness and accuracy that is suitable to simpler materials, and less exacting purposes. If, on the other hand, the pupil with a perfect or nearly perfect accuracy score reads very rapidly there is much less reason for concern. The teacher should recognize, however, a youngster who might conceivably read even more rapidly. He might use the skimming technique in a first reading and get a sufficiently accurate and full comprehension to meet various purposes. In brief, in diagnosis the percentage of accuracy scores should always be considered in relation to the pupil's speed of reading.

Overemphasis of Mechanical Factors in Reading. In discussing the basal techniques of comprehension it was pointed out that poor understanding during reading is sometimes the result of overemphasis on mechanical aspects of reading. Children who show

Diagnosis and Improvement of Accuracy and Speed of Comprehension

excessive zeal for securing accurate articulation and pronunciation of words in oral reading or for mere speed in silent reading may comprehend inaccurately because their mind is really not primarily devoted to the thought. For these children inaccuracy must be improved along with other factors in comprehension by following suggestions given in the section on improving the basal skills in reading comprehension. As noted in that section generous use of clear-cut comprehension exercises is useful. It may be noted here also that poor standards of accuracy of comprehension are relatively frequently found in classes in which ideas obtained in reading are not extensively used for practical purposes after the reading has been completed. When reading leads not only to discussion but to various artistic, exploratory, and other enterprises in which the ideas are applied, reevaluated, reorganized with new ideas obtained from other experiences, and otherwise put to work, pupils are much more likely to acquire realistic standards. The school which is almost exclusively a reading school, with relatively little provision for follow-up and related practical activities, is likely to produce artificial and unrealistic standards of accuracy in comprehension. The overexact and overthorough type of reading tends to become habituated in schools in which reading is concerned primarily only with studying the lessons in history, geography, or science.

Too Limited Use of Reading Newspapers, Magazines, Storybooks, and Other Nonschool Material. Pupils whose reading has been confined largely to the opportunities provided in the school and especially in schoolrooms in which most of the work in reading is restricted to a basal reader and the textbooks in the various subjects, are likely to develop the overexact type of slow, plodding reading. There are many of these in our present high schools and colleges. Now and then one finds a primary school teacher who makes hard study-work of all the stories and other selections in the basal readers and who provides relatively little opportunity for recreational reading in other books and magazines and for rapid, selective types of reading of newspapers, periodicals, catalogues, and other materials. These pupils may be helped most by providing them with opportunities to read many types of out-of-school materials for

many types of purposes. Lest they carry over into this work the more exact, analytical reading employed in school, the best ways of reading newspapers, advertisements, catalogues, and short stories may need to be demonstrated. An important part of the program would involve the use of free reading periods in the school and the budgeting of their time to provide a wide range of reading activities for the fun of it in the home. Only by reading a wide variety of materials for different purposes can the pupil acquire the diversity of degrees of thoroughness which characterize the highly efficient reader.

A useful device for teaching the pupil to read to meet reasonable accuracy standards is to have a single selection read and re-read for different purposes. The teacher begins by introducing the selection and telling, or putting in typewritten form for the pupil to read, the questions which she wants him to answer after a first reading. The pupil then may read the material merely to get a general impression of certain outstanding points. Having read the selection he is given a comprehension exercise or conducts discussions with the teacher to check on his comprehension. Needless to say, the degree of thoroughness asked in a first reading may differ according to the character of the material or the purpose. In some cases the purpose is one which can be realized by a rapid, selective type of reading, approximating skimming. In other cases, a moderately careful first reading serves the purpose better and in others a still slower, more thorough reading is desirable. By setting up various different purposes for different selections, the teacher can help the pupil acquire the technique of doing a first reading in each of a number of different ways.

After the first reading and a discussion of the comprehension exercise has been completed, the teacher gives the pupil a second set of questions or problems. These may call for more detailed answers or they may merely call for several additional general impressions. The pupil then rereads to get the information called for. If more detail is required, the rereading would be more deliberate, selective, and thorough, whereas if only a few additional items are needed a rapid skimming should be sufficient. In any case the

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pupil is given the orientation under which to work and he may learn to do the rereading either very swiftly and selectively or very slowly and thoroughly. After this reading he takes the comprehension exercises to see how well he achieved his purpose. If desirable, a third reading or even a fourth may be carried out. Again the teacher sets up the objectives of the reading and provides the pupil with comprehension exercises to check his understanding.

Exercises of this type may, of course, be carried on with selections of varying lengths from a paragraph to a chapter or even a whole volume. They may be organized to provide guidance for acquiring a wide variety of reading techniques and for reading for a wide variety of purposes. For example, the activity of rereading furnished a good opportunity for cultivating such techniques as skimming, reading selectively to find certain particular details, reading more carefully to organize and arrange the material during the process, and other types of study-reading. Skimming and selective reading are more easily achieved during the second or third reading because the pupil will have less difficulty with unfamiliar words and concepts and will have previously acquired considerable background of understanding. The techniques of more intensive study for permanent retention are also more easily achieved during a rereading. Thus the various techniques underlying effective study as it is required in mathematics, physics, history, and other substantial materials may be taught in such a program of guided initial reading followed by directed rereading.

Diagnosis and Improvement of the Rate of Reading

Most of the characteristics of speed of reading have been discussed in preceding chapters. In Chap. 3 was offered a brief sketch of the course of development of speed. It was noted that the typical child increases his speed in sight reading of easy material at a fairly rapid rate during the first two grades and at a rather steady rate thereafter. The child begins by reading at a slower rate than he speaks and he gradually increases it until he equals and, in most cases, exceeds it. Children in Grade 4 and above show a wide range of speeds

Standardized Tests of the Rate of Reading

of reading. Some succeed in learning to read at a very rapid rate. A superficial or skimming type of sight reading may be carried on at 500 or 600 words per minute, or even more rapidly. Without special help and instruction some children do not achieve such a high level. There is always also the possibility that a child may habituate a maximum reading rate at a level much lower than one he can really achieve. Thus children may be found who never read more rapidly than 200 words a minute although with special help they could increase the rate. One must always consider the possibility, however, that some children cannot habituate very high rates either because of inability to comprehend language in any form at a very rapid rate or because of the tension or fatigue that attends fast reading. In this chapter we shall consider methods of diagnosing speed, point out some of the more common causes of retardation, and suggest various types of instruction designed to enable each child to read as rapidly as possible and to adapt the speed of reading to a variety of reading needs.

Standardized Tests of the Rate of Reading

No tests are included in the *Gates Primary Reading Test* or the *Gates Advanced Primary Reading Tests* for measuring speed of reading. In all these primary-grade tests, an abundance of time is given for each test. Thus the slow readers may do as well as the fast readers, provided they are equally good in other factors involved in comprehension. During these grades there is rarely needed a formal test for speed. If a test-maker includes one in his battery that fact in itself might mislead teachers into putting undue pressure upon speed in the first and second grade. In general, it is better in these grades to emphasize clearness, fullness, and accuracy of comprehension and such matters as improving the perception of words, the use of context clues, the organization of material into thought units, and the like. If much pressure is put on speed it may upset or distort the normal but necessarily gradual development of the basal techniques upon which an increase of speed depends.

It would be practically impossible in any event to develop a test

for the average or slower pupils in the first two grades which would measure the speed of real reading. The reason for this is that children can read freely in the adult manner without stopping to work out the recognition of individual words only those materials composed of words with which they already are familiar. If the teacher wants to observe the pupil's speed of reading, a good way to do it is to have the pupil read silently material she has herself composed or found which contains no unfamiliar words. The children may then be asked to read the selection and the time required to complete it may be noted. If the teacher keeps a record of the time or notes the amount read by each child she can compute the number of words read per minute and then check up the comprehension by means of one of the familiar types of comprehension exercises.

For average children in the third and later grades, and for younger children also who are advanced in reading, several tests of speed are provided in the author's batteries of tests. All four of the *Gates Basic Reading Tests* provide a measure of speed of reading easy materials and the Speed of Reading test in the *Gates Reading Survey* serves the same purpose.

It is important that the teacher understand the kind of reading speed which is measured by these tests. They are designed to measure the speed with which children can read very simple material. All of them consist of rather short paragraphs of easy third-grade difficulty. The passages are about as simple in vocabulary and in structure as passages can be made which deal with a variety of not-too-babyish topics. They are, in other words, about as easy materials as children in the third and upper grades are likely to read. They should therefore provide a good test of reading with a minimum of interruptions caused by unfamiliar words or complex ideas or sentence structure. These tests should enable the pupil to show his maximum speed.

Some of the tests are designed, moreover, to test the pupil's speed in reading for the least exacting type of understanding. For example, Test A, Reading to Get the General Significance, in the *Gates Basic Reading Tests*, requires the pupil only to get a very general idea, the major point in the selection. The comprehension problems set up

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in the *Gates Reading Survey* are mainly of this sort. These tests determine the pupil's speed of reading the simplest kind of material to get only the most general impression of their content. These tests should therefore yield a measure of the pupil's most rapid rate of reading. If he can get the general impression by a skimming technique, he is likely to do so since after observing the pretest exercise he will realize that only a very general idea of the content is required.

The other three tests, in the *Gates Basic Reading Tests*, utilize an equally easy vocabulary and otherwise equally simple material. They, however, set up different types of comprehension requirements. The test Type B requires the pupil to do more than merely get the meaning of a passage. He must use the idea to solve a relatively simple problem in prediction. He must think a little beyond the content actually given. In Type C we examine the pupil's speed of reading when a much more exact comprehension and recall of the data are required. In Type D we examine the pupil's speed when he is set the task of noting several significant details. In general, then, the *Gates Basic Reading Tests* provide measures of the maximum speed with which a pupil can read materials for several different purposes ranging from the simplest comprehension of the meaning of the paragraph as a whole to a more precise and detailed analysis of the content.

By using these tests together we can determine how rapidly a pupil reads the simplest materials for each of the several representative purposes. This gives some idea of the pupil's versatility, his ability to adopt the speed and other techniques appropriate to a particular reading task when the material is as simple as possible.

The teacher may, of course, be interested to know how rapidly a pupil can read more difficult material and how rapidly he can read easy material or more difficult material for purposes other than those provided in the tests. It would be expected that the well-equipped reader would read more slowly if more difficult materials than those in the Gates test were offered. He would read more slowly because he would probably be slowed up more frequently to work out less familiar words. He would read more slowly because he would need

more time to grasp more complicated ideas or disentangle more complex structure. The Gates tests do not reveal the pupil's speed at all levels but they do indicate the extent to which a pupil can push up his speed when the material is at a minimum of difficulty. When further tests are desired, informal devices may be used.

Informal Tests of the Rate of Reading

A teacher may test a whole class at a time by mimeographing a series of passages or a single selection together with comprehension questions designed to set up the type of comprehension desired. These materials may consist of a series of paragraphs of any level of difficulty. In testing speed it is desirable to have the several passages of as nearly the same level of difficulty as possible in order to give a fair appraisal of a particular level of complexity. Instead of using a series of disconnected passages, the teacher may use a single selection, such as a short story or a unit of a story, or the whole of an informative selection.

The test may be given in either of two ways. The teacher may set a definite time limit for the whole class and ask each child to mark the place at which he was reading when the time limit was called. Another method is to allow every member of the class to complete the selection. In this case the teacher writes on the board a number to indicate the time that has elapsed. For example, if the test is a fairly short one she may write (1) at the end of ten seconds; at the end of twenty seconds erase the (1) and write (2), and so on. When a child finishes his reading he glances at the board and writes on his paper the number on the board. The children then take the comprehension exercises which should be checked up to provide a measure of the fullness and accuracy of comprehension. If this is not done, there is always a danger that some children, anxious to make a good showing, may merely go through the motions of reading without adequate understanding.

The teacher may make up a test of this type, to get an idea of the pupil's speed of reading material of each of several levels of difficulty and for each of several purposes.

Interpreting the Scores of Rate of Reading Tests

Another good informal test designed to measure the pupil's normal or habitual speed of reading is to note an individual child when he is reading a book—a story book, a textbook, or any book of interest to the teacher. She notes when the child turns the page and keeps a record of the time which elapses until the child turns the next page. Thus she has a record of time taken to read the two facing pages. She can later determine the number of words the pupil read per minute. The teacher may keep records of the child's rate of reading several different kinds of material and thus get a good idea of the extent to which he varies his speed to suit materials of different difficulty or different character.

Interpreting the Scores of Rate of Reading Tests

The *Gates Basic Reading Tests* indicate a pupil's speed of reading in terms of the grade status of the average pupil to which an individual pupil's reading corresponds in any one of the tests. These tests do not give a record of the number of words read per minute. The *Gates Basic Reading Tests* provide an appraisal of the speed of reading as determined in two different ways. The first is based upon the number of exercises read and correctly interpreted. For example, in test Type A, Reading to Get a General Impression, a pupil who gets three paragraphs correct earns a reading grade of 3.0. He reads and interprets correctly the same number of paragraphs as does a typical child at the beginning of the third grade. If he had read ten correctly he would have received a grade score of 4.0, and would have equaled the average performance of children at the beginning of the fourth grade. This score is perhaps the most important one, since it shows the rate of *effective* reading, that is, reading with as full and accurate comprehension as is required to solve the problem posed by the test.

If the pupil's grade score, based on the number of exercises read and interpreted correctly, is relatively low, it might be due either to reading unduly fast, so fast that comprehension seriously suffers, or to reading unnecessarily slowly, so slowly that the pupil really comprehends much that is not needed to achieve the understanding

required by the situation. It is also possible that the pupil is reading about as fast as he can and still solve the comprehension problems correctly. Light on these possibilities is shed by noting the number of paragraphs the pupil actually read and the percentage of this number which is correct.

The manual accompanying the *Gates Basic Reading Test* contains a table by means of which "the number of paragraphs attempted" may be compared with those of average children. For example, this table shows that the average child at the beginning of the third grade actually reads and executes the directions for six paragraphs, whereas the average child at the beginning of the fourth grade actually reads and checks fifteen. If the pupil referred to above read and checked the exercises of six passages, his rate of actual reading corresponds to the beginning third-grade pupil. If it is fifteen, it corresponds to the pupil beginning fourth grade.

This table makes possible another kind of interpretation. Suppose our pupil actually were just beginning the fourth grade. The average number of attempted passages at this stage would be fifteen. Twelve or fewer attempts would be regarded as somewhat slow reading, and nine or fewer would be regarded as very slow reading.

Still another comparison should be made. The accuracy of the pupil's reading should be computed by using the table in the Manual by means of which the percentage of the exercises attempted which were actually correct can be found. These percentages may be interpreted by the use of a table of norms. In the case of test Type A, at the beginning of Grade 4, a pupil's accuracy would be rated "very high," if it were from 90 per cent to 100 per cent. It would be rated "high" if it were between 80 per cent and 89 per cent; "medium" or average if it were between 63 per cent and 79 per cent; "low" if it were between 48 per cent and 62 per cent, and "very low" if it were under 47 per cent.

By making all these comparisons, then, we get a notion of (a) how rapidly a pupil proceeds in his reading, irrespective of comprehension, which is shown by using the table of norms to interpret the individual pupil's "number of exercises attempted"; (b) how rapidly he reads with a stipulated degree of understanding, which

Causes of Slow Reading

is shown by using the norms for "the number of exercises correct," and (c) the degree of accuracy represented by a pupil's comprehension, which is shown by using the norms for "percentage of exercises correct."

By using these comparisons, children can be rated as very fast and accurate; very fast and moderately accurate; very fast and very inaccurate; average speed, very inaccurate; also, slow speed, extremely accurate; slow speed, moderately accurate; slow speed, very inaccurate.

It is useful to keep in mind both speed and accuracy before setting up remedial work, since there is always a possibility that certain children, even if they are reading rather slowly, are already reading more rapidly than their all-round reading ability justifies. They are reading so rapidly that they do not comprehend well. In such cases, speeding them up even more without taking into account other limitations would often only make matters worse. On the other hand, a pupil who is quite rapid or average or slow, and at the same time exceedingly accurate in his reading, gives much greater promise of being able to read more rapidly without an unfavorable influence upon comprehension. Indeed, in many cases an increase in speed may actually improve comprehension.

Causes of Slow Reading

First will be listed factors which have previously been considered, including constitutional factors, inadequacies in the basic techniques considered in previous sections.

Low Intelligence and/or Low Comprehension of Verbal Materials in Any Form. In general, there is a substantial correlation between the speed of comprehension and intelligence. The pupils of lower intelligence, or of limited verbal aptitude, are less likely than abler pupils to learn to comprehend with a speed above the speaking rate.

The pupil's grade or age level in speed of reading should therefore be compared with the grade or age status in intelligence tests or other tests of verbal understanding or aptitude. The correlation,

however, is not perfect and even in the case of pupils whose reading speed grade score equals the grade score in the intelligence or similar test, it is advisable to try some of the methods of increasing speed. In some cases substantial gains can be made. Special care must be exercised in these cases, however, lest the effort to speed up the reading tend to produce tension and disturb the ability to comprehend at more modest rates.

Visual Defects. The pupil who has visual defects which are not readily corrected and who therefore does not see the words as clearly as the normal person, or the pupil whose eye muscular control is inferior, is handicapped in attempting to read very rapidly, especially in efforts to skim or read at a highly variable speed. The advice of a physician should be secured in these cases. There are, however, many children with somewhat deficient vision who can learn to read very rapidly. Due to the fact that it is possible to learn to recognize words on the basis of very slight clues, some children whose visual acuity is somewhat deficient are not seriously handicapped. Unless there is evidence that effort to read more rapidly produces visual fatigue or distress, instruction to increase the speed of reading should be provided. The child with a visual defect should not be pushed too hard or too long. If improvements are not secured in a reasonable time, the effort to increase the speed markedly should be given up.

Limited Reading Vocabulary. The pupil whose reading vocabulary is decidedly limited is handicapped in trying to increase his speed of reading. It is therefore advisable to consider the pupil's grade score in a reading vocabulary test. If the score is relatively low, instruction designed to increase the reading vocabulary should be started as a means of improving an essential basis for increasing the speed of reading.

Word Recognition. The pupil who cannot recognize words quickly and accurately and is inept at working out the recognition and pronunciation of unfamiliar ones is seriously handicapped in increasing his speed in reading. A first step to take in such a case is the improvement in the skill of word perception, utilizing methods suggested in Chap. 8.

Causes of Slow Reading

Limitations in Phrasing and Reading by Thought Units. As pointed out in the discussion of this topic in Chap. 11, skill not only in recognizing single words quickly but in recognizing familiar combinations or thought units at a single glance is an essential basis for high speed of reading. The pupil who is deficient in perception of words and thought units at a single glance should be provided with methods of instruction, such as were outlined in Chap. 11. As pointed out in that discussion, however, it is sometimes possible to stimulate the perception of words and thought units by getting the pupil to attempt to read somewhat more rapidly. Whether to adopt this policy in a particular case requires good judgment. The pupil who is relatively bright and responsive to instruction and who is also rather stable, not easily thrown into a state of tension, may be given a trial with practice exercises designed to increase the speed of reading. In such cases the teacher should take pains, however, to make sure the pupil has had adequate demonstration of and instruction about the possibility of recognizing words by thought units and is given a variety of supplementary exercises such as outlined in Chap. 11.

Deficiencies in the Technique of Getting the Thought from Connected Material. In the discussion of the basal techniques involved in comprehension, it was pointed out that some pupils understand what they read relatively poorly because their minds are mainly directed to accurate recognition of words, correct pronunciation, and the other mechanical phases of reading, or because they are backward in the techniques of utilizing context clues, or, in general, in directing themselves alertly to understand what is read. The pupil's reading may be slow because of such deficiencies. A rapid rate of reading is possible only when the individual can grasp the meaning accurately and rapidly as far as it is needed for a particular purpose. The pupil who is markedly slow in reading should therefore be provided with the various incentives and given the various opportunities outlined in Chap. 13, in order to improve his skill in deriving the meaning in the course of reading. The more clearly and quickly the meaning comes to a child, the greater is the possibility of increasing his speed of comprehension.

The Use of Finger or Pointer to Lead the Eye in Reading. This is a fault most likely to be found among pupils in the primary grades. It is often the result of failure of the pupil to discard a device introduced in the early stages of reading. Although teachers are often justified in teaching the pupil to move his finger or a pointer or a liner along the line to guide him in his early efforts to follow the lines of print, in some cases the pupil may not discard this habit. The pace at which he moves his fingers or a pointer may become habituated, and the eye may follow the slowly moving object. The fact that the pupil does not use his finger every time a teacher asks him to read under test conditions is not sure evidence that he does not use this crutch considerably under other circumstances. He may have been warned not to use it but have been unable or unwilling to give it up in private reading. His speed of reading may have been set up by the practice of reading in private while using the finger or a liner as a guide.

The Habit of Articulating Words Too Definitely. In the primary grades pupils are likely to articulate words quite definitely and fully in their silent reading. In the early stages this habit does no harm for the reason that the pupil can articulate words quite as rapidly as he is capable of reading them. The habit, however, may become fixed, and definite, complete articulation of each word may persist. The articulation may, in some cases, be audible, as when the child whispers as he reads "silently." It may be inaudible and still involve very complete speech activities, as when the child moves his lips but does not actually sound the words. The articulation, however, may be neither audible nor visible. In the latter case, the pupil may formulate each word more or less fully in "inner speech." He may organize the elaborate articulatory activities of the tongue, throat, and the general musculature of the speech organs, or he may conceivably simply hear himself say the words in his "mind's ear." In any case, time is taken to produce in some form the motor organization or the sound of the word. A child subject to any of these habits cannot read more rapidly than the speed with which he can articulate. When his silent reading reaches that level, it is likely to remain until the habit of articulating or imaging the word sounds

Typical Procedure for Increasing Speed

is eliminated. Apparently in many cases it is not necessary to eliminate it entirely, but rather to reduce it to a mere fragment of the original. For very rapid reading, however, it is probable that the articulation must be greatly reduced or even eliminated entirely.

Habituation of an Unnecessarily Slow Rate of Reading. Among pupils who show no marked weakness or inappropriate technique of the types listed above, the most common cause of a slow reading rate is the habituation of a slow reading pace. As pointed out earlier, there is a strong tendency on the part of pupils to remain content with a rate of reading about equivalent to a comfortable speaking rate. It takes a special effort to break through this level and to learn to comprehend in reading faster than one has comprehended spoken language. In order to reach higher levels a suitable reorganization of the process of reading must be made. Some children break through the level of the speaking rate and advance more or less, but eventually find a fairly comfortable speed at which they again habituate their reading. In many instances the speed adopted is one which was all that could be expected at the time they achieved it. For example, a pupil may, in the latter part of the third grade, succeed in reaching a reading rate of 250 words per minute. This may be about all that he could be expected to do by the beginning of the fourth grade but by the time he reaches the end of the fourth grade improvements in the reading vocabulary, speed of recognizing single words, in phrasing, in perceiving words in thought units, should make possible a further increase in speed. Unless there is some special incentive or urgency for making the increase the pupil may simply fail to do so. In all these cases remedial instruction is often successful when it provides the means of stimulating the pupil to increase his speed, gives him a proper setting in which to do it, and organizes a check to give him the satisfaction of knowing that he is improving his skill. Such a method is outlined in the next section.

Typical Procedure for Increasing Speed

The most effective way of increasing speed is to arrange a definite program of activities which make the speeding up of reading the

major objective. This standard procedure may be used with all those cases who show some prospects of actually achieving success. It should be avoided only in cases where there is good evidence in advance that further work should be done on reading vocabulary or word recognition or some other basal technique, or in which limited intelligence or poor vision or some other factor makes it seem likely that such a plan would probably not result in improvement and involves the risk of discouraging the pupil and upsetting the habits he has already established. Following is a brief statement of the factors that should be included in such a procedure for increasing speed:

1. Select highly interesting material.
2. Select for the first stage of the work material that is fairly easy and that contains very few unfamiliar words. It is advisable to arrange all conditions, if possible, so that the pupil may make obvious improvement from the first. This is a strong incentive to making progress.
3. During the early part of the remedial work, avoid the use of comprehension exercises of a type that delays the process of reading and interrupts the continuity of thought.
4. Introduce the remedial practice with vigor and the most hopeful attitude possible.
5. Measure and record results and display evidence of improvement. Be enthusiastic about any progress that is being made.
6. Do not continue practice for speed beyond the beginnings of fatigue or boredom. Practice when it is tiring or annoying encourages return to the old habits.
7. Repeat the practice at intervals during the day as frequently as is consistent with convenience and interest.
8. Curtail, for a time, other reading—especially oral reading—of any type that is likely to be slow and antagonistic to the new technique; and, thus, give the latter the fullest possible opportunity to function.
9. Gradually introduce the more difficult types of reading—when possible, under observation. Your presence acts as a reminder to read rapidly.

Typical Procedure for Increasing Speed

10. Anticipate, and be prepared to render, abundant, cheerful aid and encouragement when, in the early stages, the pupil encounters confusions, failures in comprehension, periods of nervousness, irritation, and despair or when he encounters such plateaus later. The task of supplanting old habits by new ones is a trying one.
11. Observe the pupil carefully but not obviously as he takes the exercises for the purpose of detecting such habits as using the finger to keep the place or whispering the words. Wherever such defects are found, introduce remedial treatment as suggested later.
12. Discuss with the pupil the characteristics of his comprehension, being especially alert for evidence that the pupil is not reading for more detail or more complete and definite understanding than is necessary to handle the comprehension questions or exercises which are used.
13. After the pupil shows ability to increase the speed of reading, encourage him in every possible way to try to read faster in leisure periods at home or elsewhere. Means must be found to get the pupil to carry over the new habits to all the types of situations.
14. Keep an eye on the pupil for some time after the special instruction has been completed. There is always a danger that a pupil will relapse to a lower level of performance. It is advisable for the teacher to try the pupil out on a special test at intervals to see that the skills are being maintained.
15. The pupil should have any help the teacher can give him through instruction and demonstration. Verbal instructions will, of course, vary with the age and intelligence of the subject. It is desirable, usually, to explain to the pupil the nature of his difficulty and as clearly as possible the things he should do to improve as well as the benefits to be enjoyed when he has increased his speed. The teacher may demonstrate how she reads rapidly. She may encourage him to speed up while she times his reading of a paragraph or page. On occasions, she may give him a series of sentences or short paragraphs, urging

him to go as far as he can in a given number of seconds. These procedures, in which the emphasis on speeding up is especially strong, should be used with care. They may be used at first to demonstrate the attitude to be taken and the kind of results to be achieved and later as a stimulant or test or as a means of producing variety. Extreme insistence on speed may overstimulate and perhaps confuse or irritate the pupil. It may also tend to make him feel that speed is more important than thought-getting.

Whatever other devices may be used, practice of this general type will be necessary to increase speed of reading. Further exercises are introduced to remove bad habits or to develop special abilities.

Correcting Excessive Articulation

If the pupil shows evidence of articulating too definitely audibly or inaudibly, visibly or invisibly, the teacher should explain to the pupil the fact that it is possible to read much faster than one can talk. She may demonstrate herself how she can do it. She may ask the child to look at her face and see that she is not making any lip movements. She may point out to the child that deaf-mute children, who have never learned to speak any words, sometimes become very good readers. They read by the eye alone, and can understand perfectly well. The teacher may offer a homely illustration by saying there are two kinds of readers, those who read "by talking" and those who read "by thinking." She may say that it is possible to read by thinking merely by looking at the words and that one can learn to do this very fast. In order to do this it is necessary to try to read without saying or thinking of the sounds of the words. Instruction of this type may be introduced in the early stages of the use of the standard procedure for increasing speed. To repeat, the pupil should be informed of the following facts:

1. Their reading is very slow perhaps because they are saying or hearing the words too much while they are reading.

Eliminating the Use of Finger or Pointer

2. They can overcome this habit; they can learn to read much faster and consequently get more pleasure out of reading.
3. That to read faster they must try to read faster; they must make themselves read faster.
4. To read faster they must try to keep their speech organs inactive; keep the tongue still; not *say* the words. They should not think of the sounds of the words, but merely look at them, moving along quickly, while trying to get the meaning. In some cases she may suggest to the child that he try to keep the tongue still, that he push it hard against the roof of his mouth, compress the lips, or hold the tongue between the teeth. Other devices sometimes tried are putting a clean spoon in the mouth or even a lollypop. In most cases, such devices are not necessary, and in some cases they interfere rather than help.
5. The teacher should urge the pupils to try to read faster and to read without saying the words to themselves every time they read either in school or at home.

In the case of excessive articulation the teacher should supervise the work carefully for some time. In correcting the tendency to articulate, confusions in comprehension are likely to occur and it is often advisable to disregard this for a time. As the pupil begins to get command of the more rapid pace and learns to curtail articulation to some extent, his attention may again be directed to comprehension.

Eliminating the Use of Finger or Pointer

The remedial procedure to be used for pupils subject to this habit should be the same in general as that described for excessive articulation. By substituting instruction concerning the possibilities of the pupil's speed being interfered with by the use of the finger and the possibilities of the pupil's increasing speed if it is eliminated, the teacher can usually succeed in getting the child to make a strenuous effort to eliminate it. It is sometimes not realized that a pupil who was for a long time dependent on a pointer or finger may

be considerably upset when first required to read without it. Patience should be exercised until he has learned to function without this crutch.

Improper Eye Movements

In the list of causes of slow reading mentioned above, nothing has been said about the possibility of slow reading being due to inappropriate eye movements. Theoretically it would seem possible that a child might become habituated to moving the eyes across the line of print with a stop and long look on each word. He might habituate this type of eye movement and later fail to read more rapidly because he does not break up the slow word-by-word movement of the eyes and substitute for it the larger, rhythmic sweeps which are characteristic of most highly proficient readers. It is true that most slow readers show irregular eye movements across the line, stopping once and sometimes more than once, on all the words. It is, however, doubtful that the eye-movement habits, per se, are the primary factor.

The eyes are exceedingly versatile in their movements. The most complicated and rapid eye-movement patterns are found when the movements of the eyes are diagnosed by photographic and other apparatus in a variety of observational activities. It appears, however, that the eyes are remarkably versatile and obedient servants rather than masters of the situation. The eye movements reflect the perceptual habits and do not establish them. When one learns to perceive words on the basis of minor and fragmentary clues, one will find that the eyes do not stop more than once on the word. If one learns to recognize words in thought units the eyes obediently conform by making but one stop on the unit. Emphasis in teaching should be placed on the modes of perception rather than on attempts to control the eyes.

It will be noted in the standard instructions for increasing the speed of reading that the pupil is urged to push up his speed. He may make definite efforts to take fewer eye-stops in reading a line and to look ahead of the point at which he is reading. Indeed, some

Securing Flexibility in the Speed of Reading

remedial instructors believe in urging the child to attempt to see the words ahead of those he is actually thinking about at the time. Their purpose here is to encourage the pupil in a way that will help increase the eye-voice or eye-perception span. It is doubtful, however, whether specifying the effort to try to see ahead of where one is understanding can have much meaning to the pupil or otherwise be superior to mere suggestion to understand as best he can. It is possible that in oral reading the suggestion to try to look ahead of the words one is saying may be understood and serve to increase both the speed and eye-voice span.

Securing Flexibility in the Speed of Reading

It was pointed out in preceding chapters that one often finds at various grade levels, even in the upper grades, high school, and college, students who are remarkably inflexible in their reading. They seem to habituate one speed which they use with little modification in reading all types of materials for all types of purposes. Very proficient readers, on the other hand, have a wide range of speeds from the maximum, which may be a very high rate, and essentially consists in skimming, to a very slow, highly analytical, and thorough analysis of more difficult materials. They can hit upon a great variety of intermediate speeds according to the requirements of the situation. Such a flexibility is a great asset.

Flexibility may be secured by giving children guidance in reading many types of materials for many purposes. The fact is that a range of speeds is possible in almost every general type of reading. For example, one can read merely to get the general idea at an exceedingly rapid rate or at a moderate or even a slow pace. Comprehensive instruction in reading consists in helping the pupil discover the effects of different speeds upon his comprehension in reading each of several types of material for various purposes. In the next chapter we shall consider the development of each of a number of types of comprehension. In connection with each, the problem of adopting the optimum speed under different circumstances and for different purposes should be considered.

The Use of Mechanical Devices

Many mechanical devices have been suggested for increasing the speed of reading. The Metronoscope mentioned in previous chapters is one. This device can be used in two ways. Connected materials may be presented a full sentence at a time, each sentence remaining in view for a predetermined length of time. The machine may be set in advance to require the observer to read at any desired rate in order to keep up with the presentation. A second method consists in exposing each sentence in three parts, the first third, the second, and then the third. The exposure rate in this form of presentation can also be controlled.

Other devices more or less similar have been suggested or are used in remedial work or have been employed in some investigations. For example, Goldstein in working with adults employed the method of projecting to a screen a part of a paragraph. By means of a motion-picture lantern all the visible lines were moved upward and disappeared one at a time at the top, while a new line appeared at the same rate at the bottom. A paragraph of the same length was always visible. This is the equivalent of moving printed materials on a long strip upward at a gradual rate, exposing a certain number of lines through an opening. The rate could be varied to correspond to different speeds of reading. Similar devices have been worked out on a small scale to be used at the reading distance. Other forms of exposure have been developed by the use of mechanical devices and motion pictures.

Unfortunately, few carefully controlled scientific studies have been made of merits and defects of these various instruments. Some of them are extensively used for remedial work in remedial reading clinics. Indeed there are apparently certain clinics in which work with these machines comprises the basal program or even the bulk of the reading experiences. In general, improvements are obtained by the use of such machines but as far as experimental evidence goes it seems probable that equally good or better results can be obtained by the use of ordinary methods and materials such as have been outlined in this book.

The Use of Mechanical Devices

In Cason's study¹ of third-grade children, improvements in the speed of reading by those who read freely in a library or who used special practice materials marked up artificially into phrase units were as great as those secured by pupils who followed an approved program employing the Metronoscope. Although Cason made a careful analysis of the possible benefits that might have been secured by introducing the novel mechanical instrument, she was unable to find any.

In another careful study, Westover² employed a device which exposed material at the ordinary reading distance at a rate under the control of the subject. His method would seem to have had some advantage over the typical use of the Metronoscope. He found, however, that the gains in rate of reading of college students who used the instrument were no greater than those obtained by equivalent students who used ordinary materials and methods under a speed-up program. It is sometimes reported that children are so enormously interested and attracted by such mechanical devices that their reading improves more than otherwise because of their greater alertness and zeal. It should be pointed out that in Cason's study the pupils were tremendously interested and attracted by the device but their gain did not exceed that obtained by children using ordinary materials. There is always a possibility, however, that the machines may be of special merit in particular cases even when the results in general are not superior. The problem is to tell in advance which these cases are.

It seems sound to advise that improvements of speed of reading and other aspects of the process thus far experimentally examined can be obtained in general, or for most children, quite as well with ordinary materials provided the program is properly managed and the pupil effectively instructed as with the complicated mechanical apparatus. Inasmuch as instruction with the mechanical device is

¹ Cason, Eloise B., *Mechanical Methods for Increasing the Speed of Reading*, Teachers College Contributions to Education No. 878, Teachers College, Columbia University, New York, 1943.

² Westover, F. L., *Controlled Eye Movements versus Practice Exercises in Reading*, Teachers College Contributions to Education No. 917, Teachers College, Columbia University, New York, 1946.

far more expensive, the conservative procedure is to use the ordinary methods first. One may think of trying a Metronoscope or other devices if the procedures based on conventional materials, sagaciously managed, do not produce satisfactory results.

References

The topics treated in this chapter are discussed in almost all the books listed in Appendix 1. See references also at the end of Chap. 7.

Exercises

1. How is the percentage-of-accuracy score obtained on the *Gates Basic Reading Tests*? What uses could a teacher make of such scores if she had no norms?
2. Give an illustration of a case of reading too accurately.
3. What difficulties may arise if one reads with only superficial understanding? In what cases would superficial, rapid reading be desirable?
4. Why are tests of reading speed omitted from the primary batteries of the Gates reading tests?
5. What level of difficulty of material is used for testing speed of reading in the Gates tests? Why?
6. Describe the kind of comprehension tested by each of the four basic tests.
7. Why are comprehension questions necessary to the efficacy of informal reading speed tests?
8. Describe two methods of testing reading speed informally.
9. What score comparisons should be made in the interpretation of children's scores on the basic tests? What is the purpose of each comparison?
10. What inadequacies in basic reading techniques may lead to slow reading? What other causes may operate?
11. At what level should a program for increasing reading speed begin?
12. How is good motivation ensured in such a program?
13. In what ways is the cooperation of the child to be secured?
14. Describe a method by which excessive articulation may be corrected.
15. Discuss the relationship between eye movement and slow reading.
16. What have been the findings of research about the value of mechanical devices for increasing speed of reading? What are the probable values of such devices? The drawbacks?

chapter 15 Diagnosis and Improvement of
Various Distinctive Types
of Comprehension

In Chaps. 3, 6, and 8 we gave certain facts about the variety of *types* of comprehension. It was pointed out that one may read for many different purposes. To take two extreme cases, one may skim a selection merely to get the general impression of what it is about, or to get the main ideas which the selection conveys. One could read in this superficial way either easy narrative materials or complex and concentrated factual selections. Either selection could be read in a quite different way, as, for example, to note the many details and remember as many as possible in some definitely organized form. A pupil who had only a short time to prepare himself to report "all about" a story or all of the most important points in a history assignment in an examination might read in this intensive, thorough way. If he had time to read the selection only once

it is clear that reading merely to get the general impression would involve a quite different set or purpose and a quite different technique of reading from those employed when his purpose is to get as much as possible to use in a forthcoming examination.

In the preceding chapters it has been pointed out that there are almost innumerable objectives which a person can set himself in reading and almost innumerable ways of reading. Among these would be many which differ from each other only slightly. It is probable that the innumerable specific tasks and orientations can be reduced to a relatively small number of quite clearly distinctive reading techniques and reading purposes. These more distinctive ways of reading shade into each other and may be combined in numerous ways. Differences among them may result also from variations in the degree of thoroughness with which the individual wishes to comprehend, differences in the speed with which he carries on the reading, differences in the range or quantity of material to be covered, differences in the extent to which the reader wishes to retain the material for later recall and use, and differences in the precise form in which he wishes to organize the ideas that are remembered. When one considers the great number of permutations and combinations that can be made of these purposes as well as of types of reading, one realizes that the number of precise *ways* of reading must be large.

It will be our purpose in this section to suggest characteristics of the more obvious types of reading, to indicate ways to be employed in diagnosing these distinctive types of reading, and to suggest programs for securing improvement.

Diagnosing Abilities in Certain Distinctive Types of Reading

If a standardized test should include valid measures of a large number of different types of reading, it would be so large and expensive to purchase, administer, and score that few teachers would use it. One must select a few representative types of reading which will give a fairly good picture of the diversity of a pupil's comprehension types.

Diagnosing Abilities in Certain Distinctive Types of Reading

The *Gates Basic Reading Tests* include four types of reading believed to be fairly distinctive and to represent four very distinctive and important comprehension techniques. These tests are Type A, reading to get the general significance of or main ideas in passages; Type B, reading to see or predict circumstances or evidence implied by but not given in the passage; Type C, reading for precise and exact understanding of what is given, as in the case of reading directions; Type D, reading to note significant details.

These tests may be used with pupils whose general reading ability is equal to that of the average child in the early part of the third grade or better. The materials for these tests are very easy third-grade materials. Easy materials rather than difficult ones were selected in order to test the pupil's ability to read in different ways in the simplest situations. If more difficult materials were used many children would fail or do poorly not because they had not learned to read in distinctive ways but because numerous unfamiliar words and complexities in the content would thwart their efforts. By using easy materials one can discover whether they can adopt distinctive ways of reading when the situation is favorable. If they can read in each of several significant ways in easy material one may be assured that the foundation has been laid for reading in similarly differentiated fashion materials of greater length or complexity.

Teachers of the first and second grades, although not provided with standardized tests for measuring separately these distinctive types of reading techniques, may profit by reading this section and setting up for their own pupils exercises of similar character to note their ability to read in different ways. Pupils in these grades are so much limited by the particular words that happen to have been taught that it is difficult to differentiate difficulties due to weakness in the several types of reading from difficulties due to vocabulary and other interferences. The classroom teacher can select for her own pupils materials which are largely or wholly free from unfamiliar words or other technical difficulties and conduct informal tests of the pupil's abilities to read in such ways as those represented in the *Gates Basic Tests*.

Pupils in Grades 1 and 2 who have reached a reading grade of 3.0

may be given the *Gates Basic Reading Test*. These children would, of course, be the superior readers and, in one sense, less in need of diagnosis. However, these children have reached the stage at which ability to read for different purposes and in different ways should be vigorously cultivated. They are well prepared to acquire a diversity of reading skills and adaptability in using them, and good teaching should provide them with special experience when they are "ready," even if they are superior to the rest of the class.

Testing by means of the *Gates Basic Reading Tests* may be supplemented by numerous types of informal tests. For example, the Gates tests do not include specifically a test for determining the extent to which a pupil can read selections and write a brief summary or prepare a logical or chronological outline. If the teacher is interested in determining how well the pupils in her class can read and achieve either of these forms of organization of what is understood and remembered, she may set up informal tests by mimeographing suitable passages, together with directions to write a summary or make an outline, and administer the tests in a manner similar to that employed for the *Gates Basic Reading Tests*. If she is interested not in the rate of reading but merely in the pupil's ability to read and produce a summary or an outline, she may give each child as much time as he needs to read all the material instead of administering the test with a time limit. In the following sections suggestions are given for different kinds of comprehension exercises which may be employed in such informal tests.

In this section we shall first discuss the nature of reading techniques, point out typical deficiencies, and suggest methods for classroom instruction and for special remedial work with retarded pupils. Well-recognized types of reading will be considered in relation to each other and to the abilities measured by the *Gates Basic Reading Tests*.

Reading to Get the Main Ideas or a General Impression

Materials for encouraging reading to get the main ideas in or to appreciate the general significance of what is read cover a wide

range. This type of reading is measured by test Type A of the *Gates Basic Reading Tests*. The type of reading demanded in this test is used in reading newspapers, magazine articles, stories, novels, and various informative materials. There is, in other words, a wealth of material which children or adults may and should learn to read merely to get the general significance of the facts presented. They should, in such reading, be fluent rather than slow and laborious, and accurate in their grasp rather than vague and inaccurate. These are the two requirements in which pupils fail. They may fail because they have had little experience in such reading—in reading miscellaneous materials for pleasure, for example—or because antagonistic habits such as those resulting from the requirement of intensive study of detailed ideas, words, or phrases have hampered the acquisition of fluency and the attitude of seeking to grasp only the significant points of the selections.

In arranging remedial instruction for deficiencies in this type of reading, the most important requirement is the provision of devices that constantly guide the pupil to discover the outstanding point of the passage without getting lost in the details, and to apprehend the significant ideas with increasing speed and accuracy. For a time, at least, the student will profit most from passages which include certain questions or exercises which require a demonstration of the grasp of the significant facts sought in the reading, which enable him to discover his errors and successes, and which measure his improvement in both rate and accuracy. That rapid progress in rate and accuracy of reading may be achieved by the use of such materials has been several times demonstrated.¹

In addition to work with exercises, the pupils deficient in this type of reading should be encouraged to read various newspapers, books, and articles which contain subject matter making the greatest personal appeal. It is important that the pupil carry over to uncontrolled reading the "set" and techniques being acquired during the controlled training, not only to ensure the functioning of the new

¹ For examples, see J. A. O'Brien, *Silent Reading*, The Macmillan Company, New York, 1921; and A. I. Gates and D. Van Alstyne, "The General and Specific Effects of Training in Reading," *Teachers College Record*, March, 1924.

habits in ordinary reading for pleasure, but also to obtain the increased interest in miscellaneous reading which may be expected to result from the pupil's discovery of his improvement in facility.

For remedial material interesting matter of almost any sort, either already in print or made up for the purpose, may be used in combination with almost any type of questions or direction device. To illustrate:

One of the best uses of airplanes is to find forest fires. You know that there are a great many forest fires in this country, and it is sometimes hard to find them until they are very large. Airplanes fly back and forth over the forest in the summer and as soon as fire is seen, the airplanes radio the news to the fire fighters.

For such a paragraph many types of comprehension tests, such as the following, may be devised.

1. Mark the two things most important in this paragraph—airplanes—fishing—summertime—news—forest fires—vacations.
2. Mark the statement which tells best what the paragraph is about.
The largest airplane made.
Flying in an airplane.
Finding forest fires by airplane.
Fires in forests.
3. Underline *true* if the statement is true; underline *false* if it is false. The passage said that:
Airplanes are useful for finding forest fires. True — False
Airplanes are useful for carrying mail. True — False
Airplanes are useful to carry the fire fighters to the fires. True — False
Airplanes radio news to the fire fighters. True — False
4. Fill in the blanks: The paragraph told how forest fires are discovered by the use of _____. The paragraph told how news of fire is _____ to _____.
5. Underline the sentence which best tells the main idea of this passage.
6. Write a title for this paragraph which best tells what it is about.
7. In your own words, as briefly as possible, write (or tell me) what this paragraph is about.

Most of these devices may be typed and given to the pupil to be filled out in writing or they may be given orally or in print for the

Reading to Get the Main Ideas or a General Impression

pupil to respond to orally. If given in the latter form, the teacher may check the responses, correct errors, and offer suggestions immediately. If the pupil works by himself, keys may be provided for most of the exercises so that he can correct his own errors.

Practice in this type of reading should, of course, not be limited to work on isolated paragraphs. Increasingly longer selections should be used. In working with such materials, exercises should be arranged which require grasp of the general drift or outstanding features of the whole body of ideas. Such exercises as writing "My Impressions" or various types of reviews of articles or books or sections of them are excellent for this purpose.

To select from a ready-made series of topic sentences combined with certain irrelevant statements or "jokers" those which make an outline of a story or article, constitutes a good exercise. Or a series of outline statements may be written by the pupil with or without a brief review (skimming) of the various paragraphs. The outline may be in the form of answers to a series of questions, each based on a significant fact or episode. These connected facts or episodes may be suggested by arranging pictures or drawings in an order that outlines the article, or such a series of illustrations may be drawn by the pupil himself. Other ways of emphasizing the main idea or impression and of connecting one with others, of encouraging comprehension of such ideas as parts of a more inclusive unity, of stimulating rapid reviews under the control of this general set may be devised to serve effectively as remedial work for deficiencies of this type.

For use with groups or individuals in need of training in this type of reading, the *Gates-Pearson Practice Exercises in Reading* have been prepared.¹ A sixty-two-page booklet of exercises is available for each of three different levels, as follows:

Book III, consisting of fairly easy third-grade material.

Book IV, consisting of average fourth-grade material.

Book V, consisting of fairly easy fifth-grade material.

Book VI, consisting of fairly easy sixth-grade material.

¹The *Gates-Pearson Practice Exercises in Reading* are distributed by Teachers College Bureau of Publications, Teachers College, Columbia University, New York 27, New York.

The book or level most suitable for a particular pupil can be estimated by noting the pupil's grade score on the Type A test and determined more exactly by trying out a few exercises from a desk copy of the four booklets. The best book with which to begin is the one which is rather easy for the pupil. There is a slight advance in difficulty within each book. A pupil who has completed one booklet may continue with the next in the series. It will be realized, of course, that certain pupils in Grades 5, 6, 7, or higher, may be best served by beginning with Book III and others with Book IV.

A specimen page from the Type A practice exercises is reproduced (reduced in size) on page 457. Each of the sixty-two pages in each booklet contains an exercise of similar length followed by a comprehension exercise. The pupil's responses should be made upon separate slips of paper so that the booklets remain unmarked and may be used repeatedly.

For pupils who are markedly retarded, the best plan is to start with relatively simple and relatively short materials. As their power increases, longer selections may be included and a longer single reading period provided. As power increases, the pupil may be provided with experiences with material gradually increasing in difficulty so that he learns to read to get the main idea on materials of varying difficulty from the very easy to as difficult as he can be expected to handle.

Skimming

In encouraging pupils to learn to read to get the main impression attention should be given to the speed of reading. In fact, it is this type of reading which lends itself most readily to the development of higher levels of speed. When a pupil is attempting merely to get a general impression or the main ideas, efforts to increase his speed are likely to be least disturbing and most fruitful. It is in this kind of reading that a pupil may discover that he can really sweep over the material much more rapidly and still get a very good idea of the main points. It is this type of reading which lends itself most readily to the development of the skill in skimming. The adult typically

The gasoline was running low, it would soon give out, and then we would be forced to land. Bennett and I had often wondered what would happen to a great three-engine plane landing in the water. Everyone thought the plane would turn over. Some thought that the fliers would get hurt. Others thought not. Anyhow we were about to find out. Only we had the added difficulty of landing at night.

As we neared the water we could not see it — only the flares ahead of us and beneath us. The wheels touched, and though the landing gear is tightly secured to the plane, it was sheared off, along with the wheels, with hardly a jar of the plane, as though a great knife had cut it. No one had predicted that.

It seemed just a second after that that the crash came. I suppose I was dazed a little. I know I got a stiff blow over the heart, and then I found myself in the water outside, swimming around in pitchy dark and rain.

— Richard E. Byrd (Adapted)

1. What does this selection tell?
 - (a) What happened when an airplane had to land on the water.
 - (b) Why the water cut off the wheels and the landing gear of a plane.
 - (c) What Commander Byrd did when the plane landed.
2. This selection suggests that these aviators felt —
 - (a) Frightened; (b) Sad; (c) Calm; (d) Happy.
3. Choose the best title for this selection.
 - (a) An Interesting Experiment.
 - (b) A Forced Landing.
 - (c) A Foolhardy Act.

A sample page (in modified type) from the *Gates-Pearson Practice Exercises in Reading, Type A, Book V*. Note that the selection is taken from a book of which the author, title, and publisher are given. The pupil is thus encouraged to read more of this material. From *Skyward*, copyright, G. P. Putnam's Sons. Reproduced by permission of the Bureau of Publications, Teachers College, Columbia University, New York, and of G. P. Putnam's Sons.

employs the skimming device when he wishes merely to get a general impression.

As children learn to read quite rapidly they may be encouraged to skim. The teacher should tell them not to try to see every word or to get every idea in every line, but to jump along the line trying to get the meaning from whatever phrase or word comes to their eyes. By attempting to do this they learn, sometimes to their astonishment, that they can move through a paragraph by taking only two or three looks at each line and still come out with a pretty good idea of what the paragraph is about. They may then attempt to do it even more rapidly. In this way skill in skimming is encouraged because it is very likely to enable the pupil to get as many ideas as he needs to meet the needs of the situation. If the pupil were urged to read at a pace unusually rapid for him or to skim the material and were at the same time required to get many details or to get a carefully organized outline, he would probably be discouraged because of his inability to comprehend as thoroughly during skimming as is requested. Let the pupil learn to skim for only the superficial general impressions. Be very careful to encourage him when he gets only a fair impression of the significance of the content. To hold him to too rigid standards might result in discouraging him. Skimming is at first a rather complex, unstable performance in which a pupil is likely to become confused. There is always danger that he will merely go through the passage on a sheer word-recognition basis without finding the meaning.

The teacher should show appreciation in the early stages of any degree of meaning secured and encourage the pupil to keep at it. Gradually he will learn to carry out the performance with less tension and uncertainty and with increasingly full and clear understanding.

Reading to Produce a Summary of the Content

Reading to get the substance of a passage and afterward to give a summary in oral or written form is often suggested as a distinctive type of reading. This is in a sense true; in listing various types of

Reading to Produce an Outline of the Content

comprehension exercises that may be used to encourage and measure reading to get the main ideas we included such a step as "In your own words, as briefly as possible, write (or tell me) what this paragraph (or passage or article) is about." Here is a case where the pupil is reading to get the main ideas and report them in the form of a summary. While he is reading he may adopt an attitude that is just a shade different from the one he would employ if he were to be given a series of statements or main ideas to check, or asked to write a title that indicated what the story was all about. This difference, however, is not a very sharp one. It is more a difference in the way the pupil expresses the ideas he comprehends and remembers than in the way he reads the material in the first place. In the program of reading to get the main ideas one may introduce exercises in writing or reporting summaries of different kinds and thus the ability to read for the purpose of summarizing the main ideas is developed.

It should be pointed out that when a pupil is reading to get a much more thorough and exact comprehension of the material, he may also be reading to get the ideas for the purpose of expressing them in summary form. Thus a summary may cover the main impression or implication, the outstanding ideas, or the most intricate details. In other words, reading to get a summary of the ideas and later to write or report such a summary is a skill to be developed in connection with all types of reading.

Reading to Produce an Outline of the Content

A pupil may read to get the main ideas and later report them in outline form. For example, if he reads a little story he may report the main episodes in the order in which they occur. If he is reading an informative selection he may reproduce the main points in the logical or chronological order, or whatever order they were given in the selection. He may, of course, not make his report in this form. He could conceivably report the points in a passage read in the order they happen to occur to him. This order might be quite different from the logical, orderly sequence of the original passage. The

method of noting the main ideas in some orderly form or an outline may be developed in connection with all kinds of reading matter.

As in the case of summarizing, while the pupil may be reading to get the main ideas, there may be a shade of difference in his set or adjustment or purpose when he wishes to report the ideas in a chronological or logical or other order from his adjustment when he plans merely to report the ideas irrespective of order. Thus in reading to get the main ideas one may provide a well-arranged series of exercises in which the pupil begins at an early stage to report the outstanding items in some simple type of outline and gradually learns to make the outline more exact and more complicated in structure. Eventually he should learn, for example, to outline a whole chapter in a social studies book in terms of main headings, secondary headings, minor headings, and so on. What the pupil needs in these cases is encouragement and opportunity to read for the purpose of producing an outline of optimum simplicity for him at the time and gradually move on to more precise and complicated forms.

It should be noted again that the skill in outlining can be cultivated when the pupil is reading for more thoroughgoing analysis than merely apprehending the main ideas.

Reading for the Purpose of Evaluating the Content

To some extent reading anything to get the main ideas involves evaluation. The mere act of getting the main ideas means that some are selected rather than others. Ideas are evaluated, in other words, in terms of their importance. In reading of a superficial type the major purpose may be some type of evaluation. For example, a pupil may read the selection to report what the *mood* of it is. Does it represent a sad or a tragic or a humorous situation? Among the major ideas may be his impression that the child whose activities are reported in the story is a very naughty or a very unfortunate boy. This is evaluation. He may also read to note not merely the main episodes but also whether the characters do the right thing,

Reading to Compare What Is Read with Other Things

or whether the story points up a good or an unfortunate moral, or whether the events are probably true or imaginary, or whether the story was easy or hard, interesting or dull, and so on. Reading to get any general impression is reading in which evaluation goes on in some degree. One cannot decide what is the "main" idea without evaluating each of several ideas.

In a teaching program or in remedial work ample opportunity should be provided to give the pupils a chance to derive general impressions of this type from the material. The pupil who is particularly literal-minded and disposed merely to get the given events rather than size them up or appraise them, should be provided with unusually frequent occasions for reading to make definite appraisals. It should be pointed out in passing that reading measured by the Gates test, Type B, that is, reading to anticipate coming events or to get the implications of the facts or items actually given, is a form of reading in which evaluation of a critical sort is required and may be readily cultivated.

Reading to Compare What Is Read with Other Things

One can distinguish reading merely to comprehend the main ideas in a passage and reading to compare what is read with another selection previously read or a report read aloud by the teacher or with the body of related facts which the pupil reads not merely to get the points which are given but to see them in relation to some other body of ideas. In teaching pupils to read to get the general significance, it is possible to induce them to take this attitude toward what is read. For example, if there are several related stories about Indians in a chapter in a supplementary book, the child may read the first one to get the major ideas and read the second one to see what additional outstanding ideas are reported or at what points there are disagreements between the two stories. He may read also to decide which of the two selections is more true, or more important, or better written, more humorous, or superior in any one of innumerable characteristics. When he reads the third one he may compare the main ideas or his impression of it with those ob-

tained from the other two. Of course, the same purposes may be sought in reading to get as many details as possible or reading primarily to apply what is read to some particular problem.

Selective Reading

In earlier chapters, it was pointed out that there is a distinction between reading merely to note the main ideas given in a passage and reading to select the materials related to some particular need. Thus a pupil may read a selection merely to report the main ideas or he may read to note the main ideas which can be applied to his purpose to compose a picture of an Indian village, and which ones are not relevant to this purpose. He can, in fact, read merely to select the former ideas, disregarding the latter.

Thus in reading to get the main ideas there may be active at the same time a process of selection. The pupil in such cases is carrying in his mind a special interest or set which enables him to identify those ideas which fall within one class as distinctive from those which do not. It should be noted that reading merely to get the main ideas in any form involves selection. Indeed the main business is that of selecting out the "main" ideas from the relatively unimportant ideas. Selective reading, however, may take different forms and it can and should be cultivated in the rapid, more superficial survey of outstanding points as well as in the more exact, searching reading of types to be suggested presently. Selective reading, in fact, can be carried on with all types of reading.

Guiding the Pupil in Acquiring the Distinctive Types of Reading. Before taking up other types of reading, it is advisable to give a few suggestions concerning methods of assisting the pupil to learn to do better any specialized type of reading. In the preceding paragraphs several suggestions have been made about the kind of material to use and types of comprehension exercises to employ to give the pupil the desired orientation and to check his results. In addition, the pupils profit from sagacious demonstration and guidance by the teacher. The pupil who is having special difficulty in learning a particular type of reading, such as reading to get the main idea,

Selective Reading

may need considerable individual help. The teacher can sit with him, explain how he should proceed, and what he should try to get from the reading. She may demonstrate how she does it herself. For example, she may say, "Now I want to read these two pages just to see what they are all about. I am going to read them very fast. Even if I miss a point or even if I fail to recognize a lot of words, I am just going to move ahead quickly and see if I can get the main ideas." She then may use her pencil or finger to show how she moves quickly through the lines. After finishing the selection she may report to the pupil what she regards as the main ideas. She may then hand the selection to the pupil and ask him to try to read as she did. The task in this case will be much easier for him because the teacher has already told him what she regards as the main ideas. He may go ahead and then, having finished, tell what he regards as the main ideas. If he adds a fact she should recognize it. If there are differences of opinion the pupil may look over the selection again to see if he read the material correctly. The teacher should be generous in approving the pupil's opinion.

On later occasions the pupil may go ahead without a demonstration. The teacher may read the same selection at the same time. When the selection is finished, the pupil may make his report and the teacher may suggest what she thought were other important ideas. Both may then go over it again.

There should be free, frank, unembarrassed discussion of the substance of the material. The teacher should be alert to give the pupil as many helpful pointers as she can during the reading and the discussion of it. For example, if she notes that the pupil is reading very slowly, she may try to induce him to read more rapidly, or if he is trying to skim at a pace beyond his ability, she may caution him to slow up a bit. If she is trying to get him to learn to skim, she may emphasize the skimming technique on a second or a third reading done to check up results or to bring out more details. The reason for this is that the more familiar one is with a selection the easier it is to skim it.

If a child shows a specific deficiency in any type of reading it means that ordinary reading activities and incentives have not

directed him properly. Such a person will almost certainly profit by sagacious, detailed, definite, but sympathetic demonstration and personal guidance.

Reading to Draw Conclusions or Make Predictions from the Ideas Given in the Material

This type of reading is measured in a simple form in test Type B, of the *Gates Basic Reading Tests*. Special deficiency in Test B may be due to inability to grasp quickly and accurately the significance of a passage. In this case a low score on Test A would also be expected. A low score on Type B may be due to inability to supplement the main idea of a paragraph in such a way as to see or predict related circumstances or events. This deficiency may exist among pupils whose achievements in Tests A, C, and D are average or better.

In the case of a special deficiency in ability to see beyond the facts actually given, without marked backwardness in other types of reading, it may be assumed that the difficulty is one which requires special remedial treatment. This deficiency has been recognized by various writers: by Thorndike in his article on "Reading as Reasoning,"¹ and by W. S. Gray in his study of remedial cases² among which he found several whose difficulties were said to be due in part to "failure to develop thoughtful reading habits," "poor habits of thinking while reading," and the like. These phrases suggest the specific difficulty: the failure to think—more exactly, to think with and beyond the facts given—while reading. These pupils are sometimes described as literal but unimaginative readers. They read without creating, without supplementing, without relating the materials to other facts.

The materials and types of problems found in the Type B test provide merely one example of many varieties of content and application that fall within this category. For remedial work, the

¹ Thorndike, Edward L., "Reading as Reasoning. A Study of Mistakes in Paragraph Reading," *Journal of Educational Psychology*, June, 1917, Vol. III, pp. 323-32.

² Gray, W. S., *Remedial Cases in Reading*, University of Chicago Press, Chicago, 1922.

Reading to Draw Conclusions or Make Predictions from the Ideas Given

teacher may utilize many other sorts of materials and exercises. Almost any type of question or exercise which requires reasoning, the appraisal and evaluation of the given facts for the purpose of answering a question whose answer is implied but not given in the material, would fall within this type. We shall give only a few examples.

Such fanciful materials as the following may be utilized as a means of securing various types of problem solving.

A mouse wished he had a bushy tail like a squirrel. A gray hen, feeling sorry for him, gave him some feathers. The mouse glued the feathers on his bare tail and went away happy. He sat on a tree and curled his tail over his back. A man with a gun came by. He cried out, "One more squirrel skin and my wife will have enough for her coat."

To direct and measure comprehension, one may use the multiple choice, true-false, or other devices which require the pupil to check various possible implications of the paragraph, or one may ask the pupil to supply answers to various questions. Such issues as the following might be raised:

What did the man with the gun do?

What is the moral of this story?

Why did the mouse want a bushy tail?

Should the mouse have desired to be different?

Did the mouse want a bushy tail in order to fool the man?

More realistic story material is usually well suited to such questioning. A story which contains several episodes is especially suitable since the pupil's conclusions concerning each unit may often be tested by his understanding of the reading of the next or some later unit. By this means, interest is aroused and rewarded, progress is encouraged and guided by the content itself. Questions which are not precisely answered in the passage may also be provided. One or more of such types as the following will usually fit the requirements:

What will happen next?

What will John do next?

30. The Schoolboys' Trick

One winter's evening news reached us that our rivals at school were about to make a raid upon us under cover of night, and that they proposed coming by the little used plank bridge so as to escape our notice. This bridge lay almost out of the town, and consisted of a single broad piece of wood without a rail. We proposed to hide ourselves among the bushes on our side of the stream, and make an unexpected attack upon the invaders as they crossed.

When we reached the bridge all was quiet and still. My purpose was to weaken it in such way that, although it might bear the weight of one, it would certainly collapse when the main body of our foemen was upon it and drop them into the ice-cold stream. The water was but a couple of feet deep at the place, so that there was nothing in store for them but a fright and a ducking. I had no compunction about the destruction of the bridge, for I knew that an hour's work could make it stronger than ever. When at last I felt by the yielding of the plank that I had done enough, and that the least strain would snap it, I crawled quietly off.

— Sir Arthur Conan Doyle (Adapted)

1. What do you suppose the schoolboy did next?
 - (a) Went down and put a prop under the bridge.
 - (b) Hid in the bushes with the other schoolboys.
 - (c) Ran and jumped on the bridge to test it.
2. What did the boys probably do after that?
 - (a) Sang songs to make the time pass quickly.
 - (b) Took turns running over the bridge to test it.
 - (c) Listened quietly for the coming of the enemy.

Two pages (in modified type) from *Gates-Peardon Practice Exercises in Reading, Book V, Type B*, by A. I. Gates and C. C. Peardon. These pages illustrate the method of securing continuity by having two or more related selections and of directing the pupil to the source of the selections for further reading. From *Micah Clarke*, by A. Conan Doyle; copyright, Harper and Brothers. Reproduced by permission of the Bureau of Publications, Teachers College, Columbia University, New York, and of Harper and Brothers, New York.

31. How the Trick Worked

I had scarce concealed myself when we heard the steps of someone approaching along the footpath that led to the bridge. We crouched behind the cover, convinced that the sound must come from some scout whom our foemen had sent on in front — a big boy, evidently, for his step was heavy and slow, with a tapping noise mingling with it, of which we could make nothing. It was only as he was setting foot upon the plank and beginning gingerly to pick his way across it, that we saw the outlines of a familiar form, and realized the dreadful truth that the stranger whom we had taken for the advance guard of our enemy was actually none other than Vicar Pinfold. It was the rhythmic pat of his stick which we heard mingling with his footfalls. Fascinated by the sight, we lay bereft of all power to warn him — a line of staring eyeballs. One step, two steps, three steps did the haughty churchman take, when there was a rending, cracking noise

— Sir Arthur Conan Doyle (Adapted)

1. What happened next?
 - (a) The vicar fell with a mighty splash into the water.
 - (b) The vicar turned quickly and saved himself
 - (c) The vicar jumped into the water when the bridge cracked
2. What do you think the boys did next?
 - (a) Came out of their hiding place and pulled the vicar out of the water.
 - (b) Dashed back to school as fast as they could.
 - (c) Stopped to mend the bridge before going home.

What will happen to John?

What is it that John really wants?

Did John do the right (or kind) thing?

What would John's mother think if she knew what he did?

What should John have done?

What ought John to do next?

How will Mary feel when she learns what John did?

Practical informative material from almost all fields—history, geography, science, invention, health—are especially convenient for use in stimulating the solving of problems that require deductions from the material given.

The *Gates-Pearson Practice Exercises in Reading, Type B*, consist of sixty-two-page booklets of material designed to improve this type of reading. Each complete selection is accompanied by appropriate exercises. There are four booklets corresponding to easy third-grade, average fourth-grade, average fifth-grade, and average sixth-grade levels, respectively. Two sample pages from one of the Type B booklets are reproduced on pages 466 and 467.

Although the use of the short materials, such as have been suggested, and the *Gates-Pearson Practice Exercises* and others of the type are exceedingly useful for intimate and definite instruction, materials of greater length and of different types should be provided. A whole book of stories or informative selections may be used as a basis for improving this type of reading by dividing them up into units and arranging questions or problems to be dealt with at intervals.

Providing Individual Guidance. In developing skill in reading to see the implications of the content the pupil, especially the slow one, may need considerable individual work with the teacher during which she demonstrates how she reads, indicates her own ideas and interpretations, and observes the pupil as he reads. She may urge him to read more rapidly or more slowly, or to change his pace during the reading. She may help him to skim the material on the second or third reading and later on the initial reading. She may ask him to reread selectively to find a particular point and to use other devices. For example, she may ask him to read the selection and give her a brief summary of the main ideas. The implications of the facts given in the summary may be taken up for discussion. Indeed one of the good ways to find the implications or to anticipate what a reasonable issue would be is to recall the main points in a summary or an outline. By getting them together in definite relationship the main implications may stand out more clearly. If they do not, the pupil may be asked to reread to find certain other pertinent facts to help

Reading for Precise and Thorough Understanding

him make a reasonable prediction. In other words, in training the pupil to read to predict oncoming events or to use his imagination or to note the implications of what is given, the teacher may be simultaneously providing experience in reading to produce a summary or an outline, in reading critically to evaluate the material, in reading to compare the substance of the selection with other ideas, and in reading to select the pertinent details. All of the ranges of speed of reading, including skimming, may be introduced in a helpful manner. The success of remedial work depends, to a great extent, upon the teacher's ability to make clear to the pupil the most useful steps and procedures, and to help him discover when he has adopted the right orientation and made the right analysis.

Reading for Precise and Thorough Understanding

Test Type C in the *Gates Basic Reading Tests* measures ability to do a very exact, precise type of literal reading. It sets up a problem in which a pupil trained to get only the general significance or main idea, however skillfully he may utilize that idea, is destined to make frequent errors. This test measures ability to read intensively, to get every significant factor accurately, to relate these items to the general problem, and to be misled by no irrelevant details, however interesting. It is a kind of reading which most children and adults find difficult. Most of us, young and old, are likely to grasp a few outstanding ideas rather than to absorb every relevant item with precision. When such exactness is required, most adults secure it by rereading. School children are less skilled in appraising their own difficulties and, therefore, less likely to reread sufficiently, if at all. Skill in this type of comprehension is not limited to the rough technique of rereading; there are certain subtle and important skills which, once mastered, function during each reading.

Various types of directions related to the child's normal interests and activities are ideal materials for use in training this skill in exact reading. For example:

Directions for playing games.

Directions for drawing pictures, modeling.

Diagnosis and Improvement of Types of Comprehension

- Directions for constructing simple objects of wood and metal.
- Directions for using tools, household utensils, school apparatus.
- Directions for using first-aid materials.
- Directions for conducting school affairs.
- Directions concerning what to do in case of fire or other emergencies.
- Directions for going to various places.

Ordinary life provides innumerable instances for which exact execution of directions is necessary. Anything short of absolute accuracy will produce errors.

That school children are typically inaccurate in this type of reading is amply attested to not only by the results of our tests but by the outcomes of study of this problem made by R. P. Carroll.¹ Carroll found, moreover, that training, such as we have here suggested, is very potent to increase efficiency in this type of reading. His practice materials were limited almost exclusively to directions.

Other materials may be used for the same purpose. Where a thorough and accurate understanding is desirable, the regular materials of history, geography, science, and other subjects are highly suitable. In the reading of arithmetic problems great accuracy is necessary. Certain studies have shown that many errors in arithmetic work are due to deficiencies in reading rather than in arithmetic proper. In the explanations and instructions in spellers, readers, and other textbooks as well as in directional matter related to work or play in manuals or periodicals the same type of precision in reading should be secured.

There is no scarcity of material for developing this skill in reading. Failures are often due primarily to lack of practice under conditions which require high accuracy. Remedies are to be achieved by arranging the work so that errors become obvious and are not tolerated and so that improvement is discerned and approved. Devices such as those we have mentioned should be provided and their use properly supervised in order to make this improvement possible.

¹ Carroll, R. P., *An Experimental Study of Comprehension in Reading*. Teachers College Contribution to Education No. 245, Teachers College, Columbia University, New York, 1926.

Reading for Precise and Thorough Understanding

One of the common causes of difficulty in reading for precise, exact, and thorough understanding is proceeding at too rapid a pace. If a pupil has learned to read quite rapidly to get the main ideas and has tended to habituate this speed, he is likely to adopt it in reading very difficult material or in reading when he wants to understand precisely and thoroughly. He fails to get the desired thoroughness of comprehension because he is pushing himself too fast. Even a very intelligent and very efficient reader cannot get a thorough grasp of complex material at a very rapid rate. The inexperienced reader may need considerable guidance in learning to adopt the optimum speed for reading for this rigid purpose. By this it is not meant that a pupil should adopt a fixed, slow pace both for the original reading and for rereading. Careful, thorough reading must be done at some stage. Some pupils find it best to read the selection first very carefully and slowly and then reread it more rapidly to bring out points that were obscure in the first reading or to get fuller grasp of all the details. They may then read again, either slowly or more rapidly, depending upon their purpose. The important thing is to suit the speed to the purpose one sets for himself. If during a particular reading one wants to note the details thoroughly, one should slow down until they can be thoroughly comprehended. In a rereading for the less well-known details one may move rapidly, actually skimming until these details are located, then slow down and observe them carefully. Flexibility in reading and rereading must correspond to the particular purpose for which the reading is conducted and not be one and the same rate on all occasions.

The widespread weakness in reading of directions revealed by various studies suggests one of the reasons for the growing use of work books, that is, of books which give the pupils directions and instructions in printed instead of oral form. The reason many pupils are unable to read directions efficiently is that they have relatively little experience and guidance in this type of reading. The use of booklets of printed directions in connection with the course in reading, including instructions for using the readers and related reading matter, for taking tests, solving problems, using word lists, using

dictionaries and other books, reading maps, making graphs, arranging illustrations, making objects, playing games, not only cultivates ability to read directions of these types efficiently but enables the pupil to learn how to teach himself.

On pages 473-5 are reproduced several pages of precise directions from the "Preparatory Book" that accompanies the Fourth Reader of the *New Work-Play Books* series, a reading system¹ which gives the pupils directions for measuring, recording, and studying their own improvement in rate and accuracy of reading.

Most of the illustrations given above are in the form of directions but this type of precise and exact reading is called for in studying many other kinds of materials. For example, in the school program there is much material in the textbooks in all the subjects which requires thorough and precise understanding. In reading definitions or brief statements of plans and procedures it may be desirable to read not only with very thorough understanding but for temporary or even permanent retention. In history and geography, there may be many facts and principles, summaries and definitions, or passages containing descriptions of procedures, experiments and the like, which require very thorough mastery.

Reading for the Purpose of Remembering the Content

A distinction may be drawn between reading for the purpose of understanding fully and precisely a definition or a paragraph of detail or the outline of a procedure for the moment or for temporary use only, on the one hand, and for permanent retention, on the other. For example, a child may read a definition so that he understands it very fully and completely as a means of interpreting various details or illustrations which follow. Once he has understood the definition clearly enough, he is able to achieve his purpose and does not need to memorize the definition or to be able to recall it later. In other instances he may wish to learn the definition either by rote or at least to get its meaning so clearly in mind that he can recall it next week or next month or even later. When it is important to

¹ By A. I. Gates, M. B. Huber, and J. Y. Ayer, The Macmillan Company, New York
chapter 15

How Fast Can You Read?

A good reader reads rapidly and at the same time understands what he reads and remembers whatever is important in it.

Do you know how fast you can read with understanding? One way to find out is to keep a record of the scores you make each time your teacher gives you a test in speed and comprehension in reading. Then if you are not improving your score,

you need more practice in reading.

This is your Record Chart. Read the next page, which tells you how to enter your records on this chart.

Don't worry about the meaning of per cent. If your mark is 50 per cent, this means that if your work were divided into 100 parts, 50 of those parts would be right, and so on.

Record Chart

Date	Name of Story	Number of Words Read in a Minute	Number of Correct Answers	Per Cent of Answers Correct

This page and the four following are pages of precise directions (reduced in size) from the "Preparatory Book" that accompanies the Fourth Reader of the *Work-Play Books* series by A. I. Gates, M. B. Huber, and J. Y. Ayer. Used by permission of the publishers, The Macmillan Company.

Table of Per Cents

	Number of Questions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	100	50	33	25	20	17	14	13	11	10	9	8	8-	7	7-
2.		100	67	50	40	33	29	25	22	20	18	17	15	14	13
3.			100	75	60	50	43	38	33	30	27	25	23	21	20
4.				100	80	67	57	50	44	40	36	33	31	29	27
5.					100	83	71	63	56	50	45	42	38	36	33
6.		..				100	86	75	67	60	55	50	46	43	40
7.	.....						100	88	78	70	64	58	54	50	47
8								100	89	80	73	67	62	57	53
9.					...				100	90	82	75	69	64	60
10										100	91	83	77	71	67
11.		...	...	...							100	92	85	79	73
12.						..		..				100	92	86	80
13.		..											100	93	87
14.														100	93
15															100

Finding Per Cents

To practice reading your table easily, find these per cents

1 A girl had 10 questions to answer and answered only 3 correctly What per cent did she have right? _____

2. A boy answered 13 questions correctly out of 15 What per cent did he have right? _____

3 A girl answered 8 questions correctly out of 12 What per cent did she have right? _____

Your Reading Curve

The numbers from 1 to 8 along the top line of the chart are the numbers of your first eight speed tests in reading. The numbers from 75 to 285 at the side are the number of words per minute that you may possibly read.

With a red pencil make a tiny x on line number 1 exactly opposite the number that

is nearest the number of words you read in a minute in the first test.

After you have taken your second speed test, come back to this page and mark your score with a tiny red x on line number 2. Then draw a line from the first x to the second x. This starts your reading curve.

Number of Words per Minute	Test Numbers							
	1	2	3	4	5	6	7	8
	285							
	270							
	255							
	240							
	225							
	210							
	195							
	180							
	165							
	150							
	135							
	120							
	105							
	90							
	75							

recall material, either verbatim or in substance, a special combination of reading and recitation is recommended.

In a study carried on both with children in the intermediate grades and with college students,¹ the author found that the method of reading has a marked effect upon ability to recall the facts given in reading selections. For the most part, the items used in this study were rather summary statements of material, such as brief biographies. The pupils were asked to learn the materials in these passages so as to reproduce them on a test later. Then schedules were set up. In one the pupils were instructed to read and then reread the passages as many times as they could in the period allowed. In another schedule they were asked to read and reread the materials—always actually reading—for 80 per cent of the time and then look away from their book and try to recall the facts during the remaining 20 per cent of the time. If they were unable to recall, they were asked to glance back at the material, look up the items they could not remember, and then continue trying to recall whenever possible. In a third schedule they read and reread for 60 per cent of the time and recited 40 per cent. In a fourth they read and reread during the first 20 per cent of the time and attempted recall during the remainder of the time. It was found that in general the pupil's memory was much better when he devoted a relatively small portion of the time to reading and rereading, but spent most of the time reciting or recalling. In fact, fourth-grade pupils, when they read and reread 20 per cent and attempted recall 80 per cent of the time, recalled nearly twice as many facts four hours later as they did when they read and reread the material all the time.

In using the so-called recitation method, two skills are required. The first is the art of recalling the material in some well-organized form. The second is the art of quickly finding the place at which materials which cannot be recalled are printed. There is really also a third art, that of actually recalling much during a process of semireading. In this case the pupil is really glancing over the material with a sort of skimming technique but does not fully read

¹ Gates, Arthur I., "Recitation as a Factor in Memorizing," *Archives of Psychology*, 1917, No 40.

Reading to Note Significant Details

when he can recall. He actually changes his orientation and recognizes the words and the meaning when he cannot recall. It is a case of going through a passage by recalling much of the material without actually reading it and actually *reading* the material only when he cannot recall it. In the grades and in higher schools, poor learning is not infrequently due to habituation of the study technique in which the pupil always slavishly reads as he reviews material instead of recalling, thinking, organizing during much of the reading and actually reading only when ideas are forgotten or only partially understood.

In developing the ability to read for precise and exact understanding and for temporary or permanent recall, the child can be greatly assisted not only by using practical materials and especially arranged comprehension exercises, but by observing the teacher demonstrate her own techniques. For example, the teacher may explain to the pupil the technique of reading a selection, then trying to recall, and finding the place and rereading as she finds it necessary. The author found in his experimental study that it was possible to do this in the third and fourth grades. With a little instruction the children could learn to make quite extensive use of this combination of skills. The teacher should then observe the pupil as he works and give him pointers concerning the speed, the type of rereading to adopt, and where to search for a pertinent item.

Reading to Note Significant Details

The *Gates Basic Reading Test*, Type D, measures ability to read for the purpose of finding quickly several specified details in the body of a paragraph. In this test, merely to note the general idea, as required in Type A, is insufficient, though it may be helpful. Something more than the general idea is needed and special techniques of locating quickly and accurately the required details must be developed before great skill in this kind of reading can be acquired.

Study of the techniques used by children and adults in reading of this type shows certain marked variations. For example, in taking the Type D test a child at one extreme may read the passage once

44. A Thousand Nails per Minute

Suppose that all the nails which went into the building of your house had been made by hand! Can you imagine how long it would have taken, or how expensive the nails would have been? In colonial times every nail had to be hammered out by hand on an anvil. Many homes had their own small forges, and even the children joined in the sport of nail-making. Nails were scarce and costly in those days.

Today most nails are made by machinery, the whole process taking place in a single machine. Soft steel in the form of wire is fed into the machine at one end, and at the other end the nails come pouring out at the rate of one hundred to one thousand per minute, depending on the size of the nails being made.

Inside the machine a very interesting process goes on. The wire is gripped firmly to straighten it, then it is struck a terrific blow on one end by a hammer. This forms the head of the nail. Powerful nippers cut the wire, forming the point of the nail at the same time. The whole nail is made in the fraction of a second.

—C. E. Rush and A. Winslow (Adapted)

1. How were nails made in colonial times?
(a) By hand; (b) By machinery, (c) By steam power.
2. Of what are nails made today?
(a) Steel bars, (b) Copper wire; (c) Steel wire
3. How is the head of the nail formed?
(a) By a twist of the machine, (b) By a blow from a hammer,
(c) By cutting, (d) By nippers
4. How is the wire cut?
(a) By scissors, (b) By nippers; (c) By chisels.
5. How long does it take to make the whole nail?
(a) A fraction of a second, (b) A second, (c) A week.

A page (in modified type) from *Book V*, of the *Gates-Pearson Practice Exercises in Reading, Type D*, introducing quotation from *The Science of Things about Us*, copyright, Little, Brown, and Company. Reproduced by permission of the Bureau of Publications, Teachers College, Columbia University, and of Little, Brown and Company.

Reading to Note Significant Details

and then answer all the questions. At the other extreme, the pupil may first read the passage, then the questions, then reread the passage once or several times for each of the questions. Some pupils may reread the paragraph a half-dozen times before completing the three exercises, whereas others may read it only once.

It is obvious that efficiency depends upon acquiring ability to get several details during a single reading. This requirement should be kept in mind in remedial work. The pupil should be encouraged to try to get the details with fewer and fewer readings. Some pupils never consider the possibility of getting the answers to more than one question at a time, until their attention is called to it. Good teaching provides the pupils with suggestions for such improvements in accordance with individual needs.

As for other types of remedial work, all sorts of material may be used in developing reading ability of Type D.

Materials published for remedial use in reading and much of the study or "work" type of reading found in use in many schools tend to emphasize reading to comprehend and recall details. An example of selections from the *Gates-Peardon Practice Exercises* is given on page 478, and an exercise from the *Standard Test Lessons in Reading*, by W. A. McCall and L. M. Crabbs, appears on page 480.

Reading to note the significant details is employed by the proficient reader in all types of materials ranging from narratives to very substantial materials in school textbooks, signs, encyclopedias, manuals, and indeed all types of informative content. In this type of reading the pupil may set his own standards. He may be reading to note what seem to him to be the most important details. He may also, of course, be reading to select the details that are most important for some special purpose. For example, if he is looking for information on how to plant a garden, he may read catalogues, manuals, newspaper articles, and chapters from textbooks to find suggestions for identifying pests and removing them. In the course of this reading he may skip or disregard many details related to other matters. In this case the reading is highly selective with reference to a purpose held in mind from the beginning.

Test Lesson 2

One spring day Harry saw a bird's nest tucked away in the hedge along the lane. He tried and tried to see into the little home without disturbing it, but could not. Suddenly he thought of something. Away he ran to his workshop. Soon he came back carrying a little round mirror, a long narrow piece of tin and two little nails.

Harry pinched the tin around the edge of the mirror. When the ends met, he bent each out. Then he fastened the mirror to the end of a long pole by slipping the pole between the bent ends of the tin and nailing it fast. Harry held his mirror over the hedge, and to his delight, he saw three little blue eggs in a bed of feathers.

1. Harry fastened the mirror to the (a) hedge; (b) pole; (c) tree, (d) nest.
2. The number of eggs in the nest was (a) 2; (b) 4; (c) 5; (d) 3
3. The bird's nest was in (a) a hedge; (b) a lane; (c) a tree, (d) the ground.
4. The piece of tin was (a) square; (b) round; (c) small; (d) long.
5. The tin was pinched around the (a) hammer; (b) nest; (c) nail; (d) mirror.
6. Harry found nails in the (a) workshop; (b) lane; (c) hedge, (d) mirror.
7. The hedge was along the (a) road, (b) lane; (c) creek, (d) garden
8. The mirror and the tin were fastened to the pole with (a) three nails; (b) one nail, (c) four nails; (d) two nails.
9. He used the mirror to see into a (a) hedge; (b) lane, (c) nest, (d) tree.

An exercise (in modified type) from *Standard Test Lessons in Reading*, by W. A. McCall and L. M. Crabbs. Reproduced by permission of the Bureau of Publications, Teachers College, Columbia University.

Reading to Note Significant Details

In reading to produce a summary a pupil may be alert to note significant details as well as the outstanding ideas. In his summary he may wish to give more than merely some of the most obvious main points by supplementing them with illustrative or otherwise significant details. He may set up as his purpose that of listing facts in chronological or logical, or some other, order. The details shown in such a case may be only a few of the outstanding ones or they may go to those of a secondary or tertiary importance. In this type of reading the pupil not only selects significant details but passes judgment of the degree of significance possessed by them. Thus reading to note details may be involved in reading to make a summary or an outline of the content.

It should be obvious, of course, that in reading to note the significant details for one purpose or another several steps may be involved. The pupil may read the whole selection once, either by skimming or in a more careful manner. If he reads by skimming he would perhaps be oriented to find only the major points and to note something of their relationship. These might be set up as major items in his outline. He might then read again more carefully and deliberately seek for the points of secondary importance. He may read a third time with a highly selective purpose of picking out of the many remaining details the few that are worthy of mention. During any one of the readings he may change his pace, skimming certain items, even rereading and analyzing them before progressing again. Thus in this type of reading a pupil may profitably employ any one of the several stages of speed ranging from the most rapid and superficial skimming to the most slow and thorough analysis.

Selective reading is necessarily involved when one's purpose is to find the "significant" details. Summaries, outlines and other forms of organization are useful when one wishes to record or display details clearly. The pattern of techniques most usefully employed may vary, furthermore, with the difficulty and length of the material, with the degree of thoroughness with which it is desirable to analyze the material, and the degree of permanence with which one may wish to retain the items.

Diagnosis and Improvement of Types of Comprehension

In improving this type of reading, as is true of others, some children may need considerable individual help from the teacher. Here again she should sit down with the pupil, explain the several methods of attack, demonstrate how she employs them, encourage the pupil to try himself, discuss his results and his techniques for the purpose of helping him to see how to proceed. By talking over the results with or without the formal comprehension questions the teacher can do much to help the pupil set up the right orientation and adopt the optimum degrees of speed or thoroughness in his reading.

References

See lists at the end of Chap. 12 and in Appendix 1, especially the following:

Horn, Ernest, *Methods of Instruction in the Social Studies*, Charles Scribner's Sons, New York, 1930.

Yoakam, G. A., *Reading and Study*, The Macmillan Company, New York, 1928.

Exercises

1. What is an essential qualification for the reading vocabulary to be used in a comprehension test?
2. Name some reading situation in which one reads to get a general impression. Make a list of reading and writing situations which may be provided in school to foster this skill.
3. Discuss methods by which the teacher may encourage skimming.
4. What would be an exercise in summarizing at the first-grade level? At the sixth-grade level? Look through preparatory books written to accompany readers to primary and intermediate levels and select exercises that foster ability to summarize and to outline.
5. Discuss reading for critical evaluation. Select some paragraphs or stories from a fourth-grade reader and write questions that will demand critical evaluation or comparison on the part of the children. Which of the *Gates Basic Tests* deals with this ability?
6. What technique is recommended for helping a child acquire several distinctive types of reading? What attitude is essential on the part of the teacher?

Exercises

7. What school subjects demand extremely careful reading with precise attention to the details in the material? What weaknesses in reading skill contribute to inaccuracy in reading material of this type? What available materials are useful in developing skill in reading for precise understanding?
8. What effect has the intention to recall material upon the reader's memory? What does this suggest about the importance of motivation in all reading? At what grade levels was a demonstration of reading with a special purpose found effective as a teaching method by Gates?
9. What are some situations in which ability to read to note significant details is essential? To an adult? What school situations are similar?
10. Is any one of the types of reading comprehension discussed above likely to function independently of the other types? What is the purpose of the detailed analysis of each skill in isolation in this chapter?

chapter 16 Instruction for the Extreme
Disabilities and Various Types
of Handicapped Pupils

In this chapter we shall consider methods for treating the nonreader or extreme reading disability cases and various special methods as well as adaptation of normal classroom procedures for meeting the needs of various types of handicapped pupils, such as the pupil of very low mentality, serious visual deficiency, and the like.

We shall consider first the so-called nonreader. Various specialists, physicians, ophthalmologists, psychiatrists, psychologists, teachers, and others, have taken a hand in developing methods to teach the child who has, practically speaking, failed to learn to read. It is not extraordinary, therefore, that very different views are held concerning the causes of the most serious failures in reading and concerning the most effective types of remedial work. In this field we shall, in fact, find quite a variety of highly specific and rather artificial schemes.

Significance of the Term "Nonreaders"

Nonreaders Are Not a Distinct Group. Certain programs of remedial work have been developed for all so-called nonreaders. This practice might lead one to assume that the nonreaders form a distinct group. In general, the nonreader is defined as one who has failed to learn to read after more or less extended instruction. In any group of disability cases, one finds a graded series from pupils who can recognize, perhaps, only a few words, to those who can read somewhat poorly. Between the most pronounced failure in reading and the most spectacular success, pupils may be graded by imperceptibly small steps.

The "nonreaders" are merely the extreme cases of disability. Where the line is to be drawn between "nonreaders" and extreme disability cases is a question. Indeed, it is rather misleading to draw a line at all. Some of the mistakes in remedial work are due to this tendency to mark off the "nonreaders" as a special group. It is better to refer to various degrees of disability and to consider those who would commonly be called "nonreaders" as the extreme cases.

Nonreaders Are, Individually, Very Different. One error to which the tendency to regard nonreaders as a special group has led is the assumption that these pupils are alike in the character of their constitutional limitations, in their inappropriate techniques, and in other features of the diagnostic make-up. If this assumption is not stated, it is nevertheless embodied in the remedial programs. As a matter of fact, these extreme cases of disability are very unlike in their make-up, in their special difficulties, and in their needs. And in these cases, the individual differences are of extreme importance in determining the type of remedial work to use.

General Characteristics of Remedial Instruction for Cases of Extreme Disability

No One Form of Remedial Work Can Be Suitable for All Nonreaders. The fact that nonreaders are very different in their nature and needs implies, as stated above, that efforts to apply a

single form of remedial work to all cases of extreme reading difficulty are likely to result in far from the best instruction.

Schemes of Remedial Work for Nonreaders Are Frequently Very Deficient in Many Respects. The most striking fact about some of the cut-and-dried remedial programs is that they take a narrow, precise form which a competent educator would never use with normal children. The defense of such deficiencies in method is often the statement that the pupil is not normal and that the rigid, contentless procedure is to be considered as medicine—not very pleasant at the time but helpful in the long run. It is a weak defense!

There Is No Cure-All for Extreme Disabilities. The writer has no one rigid method to propose for teaching the extreme cases. In his view, the choice of a method depends upon three forms of information:

1. Information concerning the unique nature of the individual pupil—his abilities and disabilities, likes and dislikes.
2. Information concerning the nature of the processes of reading and learning to read, and the skills which are involved.
3. Information concerning the specific teaching skills of the person who is to conduct the remedial instruction.

This volume was written primarily to assist in securing the first two types of information. To offer a definite, formal plan of remedial work would be easier and simpler for both the writer and the remedial teacher. The latter might apply such a program with perceptible success to many or most reading failures; but, without an understanding of the pupil's abilities and limitations and an insight into the complicated techniques of reading and their relation to the make-up of the particular child, the teacher would not know what to do when the prescription failed. Even her successes would, in many cases, be really only partial and achieved at the cost of expenditures of excessive time and energy.

Importance of Teaching Skill. The third factor, "Information concerning the specific skills of the teacher," is very important. The fact is that teachers, like pupils, have specialized abilities and disabilities. One may occasionally find a teacher who is skillful in demonstrating, explaining, guiding, and checking up while teach-

Characteristics of Remedial Instruction for Cases of Extreme Disability

ing pupils by an approach limited largely to visual study of word forms and who is much less successful with a program stressing phonetic study. Now and then one may see a teacher who is a genius at teaching pupils to read by a rapid-moving type of instruction in phonetic translation of word parts, but who cannot seem to make tracing or writing methods work so well. Another may be highly successful with a combination method, and so on. Thus the ideal remedial program involves a teacher-pupil-method totality. The best program is the one in which the method is optimum for both the pupil and the teacher.

The above paragraph should not be interpreted to mean that most teachers have a gift for only one method and that they cannot be, and should not try to be, successful with various approaches or various combinations of methods. The point of view embodied in the book is quite the opposite. Believing that these extreme limitations of teachers are rare, the writer has attempted to present a variety of approaches and combination of procedures, not only to meet the needs of various pupils but to help the teacher develop a more varied and adaptable program of methods and materials. An important cause of inadaptability of teachers, moreover, is the use of methods without full understanding of the reading processes involved. Greater adaptability results from greater insight into the nature of reading and the difficulties which pupils have with it.

Methods for Extreme Cases. It is believed that among the various organizations of materials and the several techniques of guidance outlined in the preceding pages in this volume will be found all that is needed to teach any child to read—the extreme feeble-minded or otherwise seriously defective cases excepted. The extreme disability case, like the pupil of low mentality, is best taught by a program rich in content and correlated activities in which an abundance of experience is provided under unusually carefully conducted instruction, and in which guidance and check-up of the types presented in the preceding chapters are provided.

Need of Skillful Guidance. Of great—perhaps greatest—importance is the skill of the teacher in diagnosing and directing the pupil's work, step by step, during the individual remedial instruc-

tion periods. The teacher who can see what the pupil is really doing, what instructions or demonstrations he understands and fails to understand, what he sees and fails to see in printed words; the teacher who knows when the pupil is still in the dark and when he has caught a glimmer of light; who knows how to adapt her demonstration or instruction so as to induce the pupil to move in the right direction; this is the teacher who will be most successful. Such a teacher will have at her command, or will rapidly develop, ability to assist the pupil to acquire any one or all of the various techniques and will come shrewdly to feel which ones make the best beginning and when others may be introduced helpfully. She will be skillful in developing and adapting materials to provide the optimum review or to serve as the basis of special lessons in techniques. She will be anything but a teacher with a simple, rigid cure-all.

From the preceding paragraphs it is apparent that the present author tends to favor the use of the best and richest normal program in reading carefully adapted to the nonreader rather than any quite special, limited, or necessarily different remedial scheme. It is a common statement made by the advocates of highly special types of remedial instruction for the extreme cases that they represent individuals who have failed to learn in good classroom teaching and that therefore something quite different must be tried. Some of these procedures are indeed quite different. It is the present author's feeling, however, that these failures arise most frequently from inability of the teacher to give the detailed guidance a particular pupil may need in a large classroom or from inability to discover a pupil's particular weaknesses and adapt regular methods to them, rather than to any fault or deficiency in the richer, more inclusive, and varied modern reading program. It is his conviction, moreover, that in most cases the best remedial work is simply more shrewd, more careful, more individualized application of normal principles, methods, and materials rather than the application of a distinctly different form of program. This issue will be taken up again after the characteristics of some of the best known special methods are discussed.

Methods Based on Tracing and Writing Words

In 1921, Fernald and Keller¹ described a method which they have used for some time with success in treating children who had previously acquired little or no ability to recognize words during one or more years of classroom training. This method, which we shall refer to as the Fernald-Keller method, has fortunately been described in adequate detail in Grace M. Fernald's book, *Remedial Techniques in Basal School Subjects*.² Dr. Fernald has spent most of her adult life in working with nonreaders and she has unquestionably had very great success with her method.

Some details concerning this method, together with comments on them, were offered in Chap. 10. The main features will be briefly summarized.

Stage 1 in this method consists of a period in which a child learns by tracing individual words. The word is written for the child with crayon on paper in plain blackboard-sized script or in print, if manuscript writing is used. The child traces the word with finger contact, saying each part of the word as he traces. He repeats this process as many times as necessary in order to write the word without looking at the copy. He writes the word once on scrap paper and then in his story. After the story has been written it is typed for him and he reads it in print. He also files the words under proper letters in a word file. By working with the word file he learns the alphabet. He is expected always to write the word without looking at the copy and to write it as a unit.

Stage 2 is the same as stage 1 except that tracing is no longer necessary. At this stage the pupil looks at the word and then writes it.

Stage 3 is the same as stage 2 except that the child is able to learn from printed words by merely looking at the word and saying it to

¹ Fernald, Grace M., and Helen Keller, "The Effect of Kinaesthetic Factors in the Development of Word Recognition in the Case of Non-Readers," *Journal of Educational Research*, December, 1921, Vol. IV, pp. 355-77.

² Fernald, Grace M., *Remedial Techniques in Basal School Subjects*, McGraw-Hill Book Company, Inc., New York, 1943.

himself before he writes it. When this stage is reached the child begins to read from books.

The next stage, stage 4, is the one in which the pupil is able to recognize a new word on the basis of the similarity to words or parts of words he has already learned. Fernald states, however, that "the child is never made to sound the word when he is learning nor is it sounded out for him by his teacher." In other words, the pupil learns by himself to make out the word by phonetic clues. He is given no formal training in phonetics.

In the first two stages of this program, the ones involving tracing and writing, we have the really crucial feature of the Fernald-Keller method. Fernald's view in general is that the nonreaders are pupils who are rather weak in visual perception and therefore have failed adequately to come to grips with words under ordinary forms of classroom instruction, especially those which depend largely upon "look and say" with little guidance in word analysis. Her feeling is that because of this deficiency the approach which employs the manual or kinaesthetic activity of tracing is the surest and safest way to the mastery of a technique of recognizing words. On the whole, the method, especially in the early stages, is rather slow-moving, rather narrow and restricted as compared with a modern, varied, active classroom program. It will be noted that the tracing period is on the average about two months long and may continue as long as eight in the extreme case. There is no doubt, however, that in the hands of experts in using the method it succeeds in a very large proportion of cases in enabling the most retarded type of non-reader to learn to read. The most important questions are, first, precisely what factors in the method are responsible for its success and, secondly, is the tracing procedure the only means of securing the operation of these factors?

In Chap. 10 it was pointed out that the tracing procedure is a slow but nevertheless effective device for forcing the pupil to adopt the proper left-to-right orientation and for guiding him to observe the elements of words instead of guessing the words in vague and miscellaneous ways. It forces into operation a definite system of attack which so many reading failures have never acquired in any

Methods Based on Word Sounds

adequate form and the lack of which leaves them largely helpless. In remedial work with this method the pupil enjoys the undivided attention of the teacher, an experience which many nonreaders have never had. The fact that the teacher can observe precisely what the pupil has learned, follow his progress, and make suggestions day by day is a characteristic feature of this program, as of others.

It should be pointed out in passing, however, that it is possible that highly skilled, enthusiastic work with other methods which tend to force the pupil to follow the word from left to right and really to study the details of words may produce similar results. The present author believes that, in general, this is true. Otherwise it would be difficult to explain the fact that other methods to be mentioned presently seem also to be quite successful.

It should be pointed out, however, that the Fernald-Keller method has been in use for a long time, has proved to be extremely useful even if somewhat slow in straightening out the toughest cases, and that there is now available a comprehensive manual of directions and suggestions which embodies, practically speaking, the fruits of a lifetime of the most diligent, conscientious, and astute work. This method is probably the surest when emergency measures definitely must be taken. He advises, however, that other methods somewhat simpler, richer in concomitant returns, and more quick-acting, be tried first.

Methods Based on Word Sounds

Many varieties of phonetic approaches have been used both for normal instruction and for remedial work. As an example of the application of the phonetic method in teaching the extreme disability case, the very definite program reported by Marion Monroe in her book, *Children Who Cannot Read*, will be outlined.

The first step is the teaching of the elementary sounds—the sounds of the consonants and vowels as follows:

. . . We mounted on cards the pictures of several objects beginning with the same consonant sound, or containing the same vowel. The pictures were cut from magazines. The following objects are typical of the selec-

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tions for a few of the consonants. Italics are used to represent sounds of the letters.

b baby, boy, bear	s soap, seed, sailboat
c cat, coat, cake	t table, top, tie
d doll, door, desk	w window, wagon, watermelon
g gun, goat, girl	wh wheel, whip, whistle
m man, moon, mother	sh shoe, ship, shell
n nest, nose, nail	ch chair, cheese, chick, etc.
p pie, pig, pencil	

Whenever possible, we chose words that contain a vowel immediately after the consonant, as the consonant sound is more easily discriminated in isolation than in blends (e.g., the words "soap," "seed," "sailboat," formed a better list of objects to emphasize the *s* than the words "spoon," "sled," "store," etc.). We arranged cards also for the vowels, for example:

æ cat, man, lamp	ɔ bottle, box, top
ā table, cake, gate	ō boat, coal, soap
ē egg, red, hen	ī pig, milk, ship
ē sheep, seed, beet	ī kite, dime, fire, etc.

In building up the discrimination, we began with unlike sounds, for example, *m* compared with *s*, a very easy discrimination for most of the children to make. The cards for *m* and *s* were placed in a row in mixed order, as:

soap, man, seed, sailboat, moon, mother

The child was instructed to articulate clearly the *s* and then name the pictured object. If the name of the object began with *s*, the child was asked to retain the card. The procedure was followed as in this example. Child: "S—soap, yes, 'soap' sounds like *s*"; "s—man, no, 'man' doesn't sound like *s*," etc. If the child succeeded with this drill, and with several other widely unlike sounds, we proceeded to the more difficult discriminations, as:

s, sh soap, shoe, seed, sheep, sailboat, shell
or b, p baby, boy, pie, pig, bear, pencil
or m, n man, nest, mother, nose, nail, moon

Here the children were likely to have difficulty. . . . In such cases drill was given by asking the child to get ready to say "gun," but to stop before all of the word was said. After lists were made of the child's confusions, we attempted to develop the discrimination of the sounds, by the articulatory

Methods Based on Word Sounds

movements. *M* is made with the mouth closed; *n* with the mouth opened. *S* is made with a little groove in the tongue for the air to hiss through; *sh* is made with a broader groove. *B* and *p* are different in that the vocal cords vibrate in sounding *b* but not *p*. The hand held to the throat feels a distinct purr of the vocal vibration in *b* but none in *p*. . . . The entire training, so far, was in discrimination of sounds from hearing and articulating them.

The drills for vowels followed the same procedures. . . .

The associations between the letters and their most frequent sounds were established next. In cases where there was difficulty in retention of the associations, manual tracing was introduced as a reinforcement. The child traced over a model of the letter, prepared by the teacher, while simultaneously articulating the sound. The process was repeated three or four times, and the letters were presented for recall until the sounds could be identified by sight without tracing. Usually five or six consonant sounds could be learned at one sitting. After the child retained the associations between five or six of the consonant letters and their sounds, we presented one of the short vowels, usually short *a*. The child then combined the vowel and consonants in building simple words. The vowels were easily blended with consonants if the vowel preceded the consonants, as in the list "at," "am," "ask," "and," etc. We later presented lists in which the consonant preceded the vowel, as "cat," "can," "cap," "ran," "rat," etc. From this point on, the remedial work consisted of developing the recognition of words from their sound components. We usually proceeded systematically, by easy stages, passing rapidly through the drills which were easy for an individual, and spending all the time necessary when difficulties were encountered at any stage. Often we had to give special drills in blending the sounds of words to make the word. Thus, some children could sound the individual letters of the word *p-i-g* but could not blend the sounds to give the complete word. For such children we devised games in which words were sounded orally, progressing from two-sound combinations, such as *m-e*, to three- and four-sound combinations, such as *sh-i-p*, *t-r-a-p*, etc. The words learned were listed systematically, traced manually, and reviewed frequently. . . .

After the child had traced the words of a list written on paper while articulating the words slowly, he was presented with the words printed on cards for recall. No flashing of cards or pressure for speed was given; but on the other hand the child was always encouraged to articulate the separate sounds and blend them, whenever unable to recognize the word as a unit.

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The variability of the children in their immediate recognition of words was constantly evident. A word might be recognized immediately as a unit at one sitting and yet have to be attacked phonetically as a totally strange word at the next. The phonetic method gave the children a feeling of mastery over the insecurity of their recognition. As one child said, "Sometimes it just flashes out at me what that word is but other times I can't remember it. But I can always go back and get the sounds now." . . .

As soon as the child had a vocabulary of a number of words he was given stories written in simple phonetic language. The non-phonetic words of primer vocabulary were added gradually, such as "you," "the," "to," "were," "are," "mother," "father," "again," "one," "said," "they," "two," "would," etc. The non-phonetic words were learned by tracing and articulating. The known sounds were pointed out, as *m*, *th*, and *r* in "mother," *w* and *r* in "were," etc.¹

When the vocabulary, developed by these methods, grew sufficiently large, the pupils "were given ordinary primers and first readers." New words were learned by sounding and blending the letters and certain two-letter combinations, such as "the two-letter vowels." With this background of phonetic experience, it is expected that the nonphonetic words could often be obtained from the context.

Other Methods Based on Word Sounds

From the earliest days of dealing with the extreme cases of reading disability the use of some type of phonetic or sounding approach similar more or less to the Monroe method has been popular. A number of schemes based primarily upon a detailed sound approach have also been proposed within the last twenty or even the last ten years. The method proposed by Orton,² for example, is primarily a sounding approach with some points of similarity and some points of difference in comparison with the Monroe scheme. Orton does suggest tracing of those few letters which are readily mistaken for other

¹ From Monroe, Marion, *Children Who Cannot Read*, University of Chicago Press, Chicago, 1932.

² Orton, Samuel T., *Reading, Writing and Speech Problems in Children*, W. W. Norton and Company, Inc., New York, 1937.

Other Methods Based on Word Sounds

letters of similar absolute shape but in a different orientation, as, for example, *b* and *d* or *p* and *q*. He advocates, however, only the tracing of these letters until they can readily be recognized. He then begins by teaching the letters of the alphabet and the sounds for each letter and for certain phonograms or combinations of letters. This is carried on very systematically and thoroughly and is combined with rigid drill in blending or combining the letter sounds.

A method outlined by Gillingham and Stillman¹ is very similar in character and based upon substantially the same underlying theory as the Orton program. Another phonetic approach again different in minor details but consisting essentially of teaching the letters and the elementary sounds first and gradually adding sounds of letter combinations or phonograms together with the blending or combination of these sounds to give the whole word, has been recommended by Kirk.² This method is suggested primarily for work with mentally retarded and dull normal pupils. The author (page 161) describes it as "in the initial stages primarily a phonic approach which differs from the conventional phonic systems in its completeness and in its emphasis on certain principles of learning and retention." He states furthermore "the method has proved successful with children who have failed to profit from various conventional school methods over a period of years."

Since these methods are very much the same in general character although differing more or less in detail, we shall not discuss them all but confine ourselves to the Monroe procedure. The general comments made on it are, however, applicable to the other methods mentioned above and indeed to a great many other varieties of analytic phonetic schemes developed for nonreaders and other reading disabilities and to other phonetic schemes devised for teaching normal children in the classroom.

The basis of Miss Monroe's approach contrasts sharply with the

¹ Gillingham, Anna, and Bessie W. Stillman, *Remedial Training for Children with Specific Disability in Reading, Spelling, and Penmanship*, Sackett and Wilhelms, New York, 1940.

² Kirk, Samuel A., *Teaching Reading to Slow-learning Children*, Houghton Mifflin Company, Boston, 1940.

Fernald-Keller method. In the latter, no attention is paid to formal phonetics training. In the tracing stage the sounds of letters or letter combinations are completely disregarded. In the Monroe procedure the sounding of word elements and the blending of these sounds are the basal skills sought. Tracing and writing are introduced as a supplementary means to this and chiefly for the purpose of assisting the pupil to "combine the separate components of the word into an organized unit."

Although Miss Monroe's program includes various supplementary devices for correcting reversal tendencies, omission of words, and other defects in sentence reading, and for assisting pupils who have defective speech, hearing, or vision, the program outlined above is the basis of remedial instruction of the serious cases of disability. It is a definite, rigid, hard-drill program. A notable feature is that it proceeds systematically from the smallest element or detail toward larger wholes. It begins with sounds, proceeds to sound-printed letter associations, thence to combinations comprising spoken or written or printed words, thence to words in phrases and sentences. It forfeits the interest, substance, and concomitant values, in the initial stages, which a method permitting a quicker approach to, if not a beginning with, real reading of simple materials would provide. It delays, more than the Fernald-Keller method, the reading of words.

Even when a detailed procedure from elements to wholes is indicated, the sounding method is not always the best. Pupils who are particularly inept in blending sounds, or who are defective in auditory perception or in auditory sensitivity and discrimination, often learn more rapidly by a method which places greater dependence upon visual analysis or on tracing and writing or some combination of these.

Finally, as Hinshelwood¹ and others have observed, some of the most extreme cases suffer precisely from being engulfed by the details of words. Those who are unable to see the forest because of the trees need to be taught how to see the wholes by observing the configuration and its larger components. For these cases, use of the Mon-

¹ Hinshelwood, J., *Congenital Word Blindness*, Lewis & Co., London, 1917.

Methods Based on Visual Study of Words

roe method might merely be adding oil to the fire. Some of the cases to whom Miss Monroe's method were applied without producing appreciable improvement may have been of this type.¹

Methods Based on Visual Study of Words

Methods which utilize almost exclusively a visual analysis rather than a phonetic or tracing technique have been used on extreme reading disabilities. Although few reports have been made in the literature, the author has observed methods of this type in operation in a number of places, including work done in the New York City Remedial Reading Project, to be described presently.

In some instances, the procedure adopted is quite similar to the one which produced admirable results in teaching beginning reading to deaf mutes. This program will be sketched later in this chapter. At the beginning, the instructor attempts to get the pupil to apply his attention vigorously to the observation of words. Many of them begin by recognizing the words on the basis of general configuration and the more obvious visual features. Gradually, assisted and directed by the teacher, the pupils learn to observe more details, more subtle features, and to perceive them more quickly and accurately. They learn to work out the recognition of unfamiliar words in terms of the visual features just as they learn how to recognize other small items by visual means.

This type of approach often produces excellent results. It is a rather adaptable method within limits, in that perception can be based upon different features of words, such as large or small elements as fits the aptitude of the individual, and refinements can be carried out to different degrees. It is direct and rapid procedure. It is particularly good in fostering the development of the kinds of quick recognition of words needed in full-fledged reading. The success of the method, as the author sees it, depends largely upon the teacher's skill in demonstrating and guiding the pupil to adopt a vigorously active and analytic procedure. The teacher must, for

¹ See summary for cases on pp. 139-43 of Monroe, Marion, *Children Who Cannot Read*, University of Chicago Press, Chicago, 1932.

example, be skillful enough to induce the pupil always to observe the word from left to right. In some cases this is rather difficult, but the more astute teacher using various devices such as were outlined in Chap. 10 is usually successful. Now and then, however, a child is encountered who has difficulty in acquiring a sufficiently systematic and analytic technique of observing words without some training in utilizing the sounds of words; in frequent cases, the introduction of some experiences in tracing and writing seems to increase the effectiveness of the program. In some cases, the tracing and writing were used for a short time and only as a means of setting up general techniques, and then the more rapid-moving visual analysis was employed.

The purely visual approach is successful in most cases as are the other devices which depend chiefly upon one technique, such as sound analysis or tracing and writing. Although most cases can be rounded out in a program of carefully managed individual work, it is the author's belief that better results are obtained in a program which is broader and includes all the helpful aids.

Methods Based on Adapting a Broad, Modern Classroom Program to the Needs of Extreme Disability

In the light of criticisms of each of the rather restricted plans of remedial instruction, it would seem advisable to employ a method which embodies all the procedures and techniques taught to normal children in the best classroom programs. As was pointed out in Chap. 7, the good readers can and do utilize various types of visual and auditory clues, as well as context clues, and vary their approach by shifting from one to another to meet particular difficulties. It was pointed out in that chapter that the diversity and peculiarities of English words are so great that this variety of techniques and versatility in using them are essential to meet ordinary reading demands. It seems therefore advisable to try to give the poor reader as good an equipment as a normal pupil. His very ineptitude suggests the need of more and better tools; not fewer and more restricted ones. At least somewhere in the course of the development of the

A Broad, Modern Classroom Program to the Needs of Extreme Disability

nonreader's ability, provision must be made for teaching him the effective use of all the techniques employed by the successful readers.

Much remedial work has been done with the most extreme cases by introducing a well-rounded, rich, and varied program of reading readiness activities and beginning reading methods of instruction, more or less similar to those outlined in this volume. Remedial work consists merely in providing abundant, cheerful, carefully managed instruction for the individual pupil. In this work the teacher makes a more intensive study of the pupil's individual abilities, difficulties, and needs. She takes more time and exercises more care in demonstrating and explaining the techniques. She observes the individual child while he works and offers additional explanations and suggestions; she provides as much review as the child can profitably use; she sees to it that he does not move forward too rapidly or too slowly; and she tries various explanations and devices when she finds that the one first used does not prove to be very serviceable.

The teacher may, after adequate trial of the usual devices, resort to some of the procedures commonly used only in special work with the nonreader. For example, she will give a fair trial to the methods of observing words, using context clues, straightening out the left to right orientation, and making the visual and auditory analyses outlined in previous chapters. If a child has an unusually stubborn difficulty she may, after giving the other devices a reasonable trial, resort, for example, to tracing and writing. Even in this case, she does not adopt the tracing and writing device for almost exclusive use for weeks or months. She tries it merely as a way of getting the child started right, a way of making more clear to him how he is to observe words and maintain consistency in viewing them from left to right. Once the pupil has begun to make headway, the program covering the full range of reading activities and devices is thrown into operation.

This general approach is probably more widely used than any other for extreme disabilities. Something of a test of the procedure was made possible in New York City schools during the period of years following January 1934, when a city-wide remedial reading

program was established under a subvention from the Civil Works Administration. The policies employed during the first year and a half of this program were set up in a general form by the present author in cooperation with various officials of the New York City system. Dr. Annett Bennett was in charge and most of the supervisors were chosen by the author. During this period approximately five hundred teachers were engaged in giving remedial instruction to the most serious cases of reading disability located by the school principals of New York City. Few of the teachers had had previous experience in remedial instruction and none had had more than four years of teaching experience. They began the work after a short period of instruction by the twenty-three supervisors. The project was continued in operation with various numbers of teachers ranging from three hundred to seven hundred at one time until its termination on the outbreak of World War II.¹

The general plan recommended was briefly as follows: In the first meeting the teacher got acquainted with the pupil. Her main effort was to find out all she could about him and to set up good relationships. Following this the teacher gave the pupil opportunities to attempt to recognize words and to read simple selections, while she observed him in order to find out what words, if any, he knew, the kinds of techniques he attempted to use in working out the recognition of words, and so on. She then started by giving him opportunities to read, at first silently, materials of suitable simplicity. In the case of the nonreader, she began work with a few simple sentences and tried to build up ability to recognize a few words. She then proceeded to teach the pupil to learn by the use of workbook or preparatory materials, seatwork materials, and a variety of reading matter organized in rich and varied program of the types now employed in the better schools.

In general, the work was largely individual and the teacher continually observed the pupil's techniques and difficulties and directed her demonstrations and suggestions along the lines that seemed to her most likely to be helpful. She followed a program for developing word recognition and use of context clues very similar to that

¹ It is being continued on a smaller scale by the New York City Board of Education.

described in the preceding chapters. It is obvious that a great variety of devices are appropriate in such a program. For example, many devices were used to induce the pupil to make more critical study of word forms and compare one word with others. The teacher might use such a device as cutting the word *baby* into halves, or cutting *cat* between the first and second letters and asking the pupil to pick out these parts and put them together. This device was used infrequently merely to intensify the observation of the words. In other cases the teacher would cover up a word with a card and then ask the pupil to sweep his eyes over the word to see it as a whole. In some cases the pupil himself would be asked to cover and uncover parts of the word.

A variety of games and gadgets were invented by the teachers on hunches that they would be effective with certain particular children. Children were encouraged to underline parts of words which they recognized as familiar. In some cases considerable time was spent on devices that forced the pupil to say the word letter by letter, such as uncovering one letter after another, learning the sounds of letters, or typing the letters. In other cases, a flash-card device was employed to induce the pupil to look at the word as a whole. It should not be assumed that these devices were used willy-nilly. They should be, and in the best cases were, adopted because the teacher had some good reason to believe that the particular device or gadget would serve to demonstrate a method of attack or to induce the pupil to adopt a desired type of approach.

The program included extensive reading of materials made up from already-learned words. Materials were adapted and written in large quantities by the teachers themselves. Eventually central committees were organized to prepare additional supplementary reading matter. In other words, the program was by no means a narrow drill program, although instruction was individual and intensive. Efforts were made to provide the pupil with the largest possible amount of the most interesting reading matter and to give him opportunities to employ his artistic, dramatic, exploratory, constructive, and other interests in connection with the reading program. In the work of the first year and a half, teachers were given full

freedom to employ the tracing device, any one of several of the phonetic approaches, flash cards, projection lanterns, and other gadgets and devices when they felt they would be especially helpful.

In general, it may be said that the majority of teachers felt that they got the best results with all kinds of cases, including the non-readers, by the intensive, individual application of the methods recommended for the best classroom use. There were a few who felt that they got better results, especially with the nonreaders, by spending a certain amount of time following what is essentially the Fernald-Keller tracing method. There were some, but a much smaller number, who had great faith in a method which employed a more formal phonetic approach similar to the procedure used by Monroe, Orton, Kirk, and others. There were many who felt that the more intensive use of tracing or of a formal phonetic program was good for certain cases but not for others. Some of them felt that they learned to sense quite well, after a period of experience with a variety of devices, what children would be most helped by the tracing or by a phonetic or some other special device. In general, however, the more intensive use of tracing, phonics, or other such devices, was undertaken only as a kind of last resort, when the teacher began to feel that she was not making satisfactory headway by the other devices more commonly used in classroom instruction.

The results of the New York City remedial reading project were, on the whole, very good. The author made an analysis of the results obtained in 2676 cases given remedial instruction during the first semester. This group as a whole showed a mean chronological age of 109.3 months, and an I.Q. of 87.1. Twelve per cent of the pupils had an I.Q. of less than 75. Since the average I.Q. of these pupils was 87, the normal gain for the average period of training, forty days or approximately two months, would be 1.75 months, whereas the gain under the remedial instruction in this period was 7.68 months, or over four times the normal. Of the pupils who had thirty days or more instruction, only about 5 per cent failed to show a gain of more than 1.75 months in reading ability. In considering these results it should be realized that these were the most serious cases

Instruction for the Pupil of Low Intelligence

found in the city, that the teachers were, in the beginning, not well trained for this type of work, and that they were confronted with many extraordinary difficulties in getting adequate materials. Many of these pupils were badly discouraged individuals. Sixteen per cent of the boys and 4 per cent of the girls were definitely problem cases, as well as reading disabilities.

During later years, still better results were obtained. During the second year, according to Dr. Bennett's reports, only very rare cases failed to show marked improvement. Large numbers of extreme reading disabilities or nonreaders were taught to read well enough to return to the work of the normal classroom.

Among any group of pupils seriously retarded in reading will be found individuals subject to one or more of a variety of difficulties or deficiencies, such as limited intelligence, poor vision, inadequate hearing, and so on. Remedial instruction for the nonreader should include modifications of materials and methods to take into account special defects or limitations. In the remainder of this chapter will be offered a few suggestions concerning adaptations of the normal program and the arrangements of special materials and exercises to meet the needs of certain types of handicapped pupils.

Instruction for the Pupil of Low Intelligence

In Chap. 4, suggestions were made concerning methods of measuring the intelligence of poor readers. In this section we shall consider only methods and material of instruction for the pupils of low intelligence.

In the first place, pupils of low intellectual equipment will need a longer prereading and reading readiness period. The program outlined in Chap. 6 is suitable for the slower learners. In most of the abilities which one tries to develop in the prereading program, the pupils of low intellect will be more retarded and will need longer and more careful preparation. It is especially important to give the slow-learning pupils a thoroughgoing equipment of reading readiness techniques in order to reduce to a minimum the new learnings which must be undertaken when the pupil actually begins to read.

The best teaching consists in prolonging a rich and varied reading readiness program for as long a time as may be necessary to establish the prereading and reading readiness techniques in well-mastered form. The tests of reading readiness suggested in Chap. 6 may be employed for these pupils as with others.

Probably the best single generalization to make concerning the child of low intelligence is that he should be provided with more than the average amount of those types of materials and instruction which have proved best for typical pupils. He should have more reviews of basal words, a greater amount of easy reading, a larger variety of interesting activities, more detailed and more simplified explanations of technique, more specific and extended demonstrations of method, more experience and guidance in discovering the visual and auditory characteristics in words, more time and opportunity for the comprehension and use of ideas contained in the reading selections. The child of low intelligence, in brief, differs chiefly from the average by being slower in learning.

In an experiment conducted by the author an effort was made to find the relative number of appearances per word in the basal materials best suited to pupils of different intelligence quotients. The following table gives some of the main findings. It should be realized that the numbers of repetitions listed in the table are those provided in the basal materials during a relatively short period following the initial discussion of the word. Needless to say, all the pupils encountered the same words frequently in supplementary reading not under the control of the experiment.¹

These figures do not show the ideal number of repetitions per word for any and all types of programs. Their significance lies mainly in the relative frequency. For example, with I.Q.'s from 60-69 it would seem to require approximately three times as many repetitions to get a moderate mastery as for pupils with I.Q. of 120-129. Those with an I.Q. from 80-89 would require twice as many as those within the 120-129 range. It is probable that the children with higher I.Q.'s actually learned the words better with fewer

¹ Reported in Gates, Arthur I., *Interest and Ability in Reading*, The Macmillan Company, New York, 1930.

Instruction for the Pupil of Low Intelligence

RANGE OF I Q (CHRONOLOGICAL
AGES BETWEEN 6 I AND 7.5 YEARS
AT BEGINNING OF TERM)

NUMBERS OF REPETITIONS TO BE
PROVIDED IN READING COURSE,
I E , ASIDE FROM ALL INCIDENTAL
READING

120-129	20
110-119	30
90-109	35
80-89	40
70-79	45
60-69	55

repetitions than did those with lower I.Q.'s, and that had all conditions been more adequately controlled the differences would have been greater rather than less.

Special programs for pupils of lower intellect often include a relatively large amount of work-type or drill-type exercises and a relatively small amount of free, easy, recreational reading. This is probably a mistake, as is indicated in another study.¹ The pupils of low intelligence have less intrinsic interest in the hard study-type of activities and a greater need for highly interesting content to maintain their enthusiasm for the work and to prevent boredom. It is particularly important in teaching dull children to provide large amounts of the most thrilling material possible and to embody in the program a variety of artistic, dramatic, exploratory, and other activities as a means of maintaining interest and attention. That children of low intelligence enjoy substantially the same kinds of materials as the average or brighter children was demonstrated in studies made by Huber and by the writer.²

Another occasional error in teaching reading to duller children

¹ Gates, Arthur I., and David Russell, "Types of Materials, Vocabulary Burden, Word Analysis, and Other Factors in Beginning Reading," *Elementary School Journal*, September, 1938, pp. 27-35, and October, 1938, pp. 119-128

² Huber, M. B., *The Influence of Intelligence upon Children's Reading Interest*, Teachers College Contributions to Education No. 312, Teachers College, Columbia University, New York, 1928; and A. I. Gates, *Interest and Ability in Reading*, The Macmillan Company, New York, 1930, Chaps. 2, 3, 4.

is to introduce more rigidly formal and sometimes more complicated methods of analysis of the words and other materials than would be used among normal children. For example, in some programs for the low normal pupils a very rigorous program of drill in phonetics is introduced. Some of these confine the children to a single, narrow, formal type of activity instead of providing the variety of approaches, games, and devices employed among normal children. This policy is defective on two scores. In the first place some of the highly formal activities require unusually difficult types of analysis. The analysis of words into a large number of sounds and the detection of small shades of difference in sounds represent problems which only children of rather superior aptitude can hope to master. By confining the program primarily to one type of word analysis, the child loses the fun which may come from approaching the word in various ways as a puzzle and utilizing a variety of devices and game-like activities. The whole program of word analysis will be particularly difficult for slow pupils. What the children need is expert, cheerful assistance in learning the identification of the varieties of word-perception clues and the provision of the most interesting and challenging activities as a means of fostering the learning process.

Certain features of the program for teaching reading to pupils of lower than average intelligence were studied in a five-year experiment known as the *Speyer School, Public School 500, Experiment* in New York City. Begun in February 1936, this experiment was based upon experiences with six classes of slow-learning pupils, Grades 1 to 6 inclusive, selected from a typical New York City school population. The study was carried out jointly by members of the staff of Teachers College and the officials of the New York City public-school system. The experimental classes consisted mainly of pupils with I.Q.'s from 70 to 90, with a few perhaps a shade above 90, but none above 95. This group represents roughly the lowest third (exclusive of the special classes) in a typical city population.

During these years a variety of programs were tried out in comparison with each other and in comparison with results obtained

Instruction for the Pupil of Low Intelligence

from pupils of equivalent intellect taught in a more formal program in other New York City schools. It was found that the pupils of low normal intellect learn most effectively in a type of activities program similar in essentials to that found to be most enjoyable and productive for other children. In the typical class highly formal, artificial drills were not found to be useful when used for more than demonstrating or giving a brief introductory experience in using a new technique. The best program approximated more closely the activity program coupled with the use of basal readers and accompanying preparatory books or workbooks than it did the formal limited organization sometimes used for teaching non-readers. Making exceptional provision for free reading for recreation or for finding ideas to be used in some school project was found to be highly profitable. In the Speyer School program the reading was coordinated as far as possible with other methods of learning, such as visiting places of interest, planning and carrying out projects involving the construction of materials and apparatus, planning of displays, arrangements of dramatic episodes, decorating the room, calling in and listening to reports and stories from specialists, and the extensive use of still pictures, sound motion pictures, and class discussions.

Informality, a wide range of approaches, freedom for action according to individual interests were significant features. One of the most important requirements of effective teaching of dull normal children consisted in the finding or preparation of unusually large amounts of reading material of relatively easy character. For example, children of fourth-grade age and classified as members of the fourth-grade class usually were given basal readers and preparatory or workbooks of at least a grade lower. Within the class there would sometimes be children getting basal instruction even two grades lower. All, however, proceeded to work on similar topics. The teacher sought from all possible sources easy materials relating to the theme. They prepared some materials themselves and during part of the experiment were able to secure additional materials written by the members of the WPA Writer's Project.

In general, the teacher adopted the policy of getting the pupil to

read as much as he would at the levels best suited to him, no matter what they might be. No effort was made to work over materials ordinarily assigned to the grade. All types of materials were included. For example, they chose *My Weekly Reader* a grade or two below the ones to which the pupil's age conformed.

The daily newspapers were introduced. It was found that even in the upper grades among these pupils *The New York Times* was too complex and advanced. When this fact was realized the teacher promptly gave up efforts to induce the pupils to use this sophisticated newspaper and adopted one of the tabloids which they could manage. The teacher made the best of these papers on the assumption that it was better to have them work with newspapers which they could actually understand and in which they were interested than to be thwarted in efforts to read more complex material.

A careful analysis of the growth of reading in these experimental groups showed that these Speyer School pupils acquired reading abilities which were, on the average, slightly in advance of their Stanford-Binet mental age. In comparison with pupils taught in a more rigid and formal program utilizing more advanced material in the nearby public schools it was found that the Speyer pupils were, on the whole, slightly better in standardized reading tests. The main difference was the extent to which the pupils read of their own accord. In the amount of reading done (as indicated by response on the Witty check-list of children's books) the Speyer pupils showed superiority. For every book read by a pupil in the control group the Speyer pupil read 1.7 books. The Speyer pupil's advantage, however, appeared greatest of all in the reading of books of special character—books not included in the Witty list. This means that the Speyer pupils read more widely and in more diverse fields. It seemed that there was little doubt that the Speyer pupils, although they did not become markedly better readers in the technical sense, had learned to enjoy reading more and had developed habits of using reading more widely in their everyday recreational and work-a-day activities.¹

¹ The following references represent details of the Speyer School experiment in teaching reading to dull normal pupils.

Instruction for Pupils Seriously Deficient in Hearing

In a volume entitled *Teaching Reading to Slow-Learning Pupils*, by Samuel A. Kirk¹ is outlined the result of many years' experience with this problem. This volume describes many activities and devices that may be profitably used in connection with any well-rounded program for retarded pupils. Although it is the present author's opinion that Kirk recommends certain types of drill experience in connection with the phonetic program which are undesirably formal and intricate, these methods are not an essential part of the program as a whole. The volume gives many concrete details of materials, procedures, and game activities which may be profitably used with all types of slow-learning pupils.

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Following is a description of a program which may be carried out by pantomime and demonstration without the use of the voice, although this extreme measure is inadvisable when the voice can be heard. The material and procedures described are taken from a course arranged for handling pupils in groups.² They have been successfully tried in the most difficult situation, namely in the teach-

Gates, Arthur I., and G. L. Bond, "Some Outcomes of Instruction in the Speyer Experimental School (P. S. 500)," *Teachers College Record*, December, 1936, Vol. 38, No. 3, pp. 206-217.

Gates, Arthur I., and Miriam C. Pritchard, *Teaching Reading to Slow-Learning Pupils*. A report on the experiment in New York City Public School 500 (Speyer School), Teachers College, Columbia University, New York, 1942.

"Some Results of the P. S. 500 (Speyer School) Experiment with Slow-Learning Groups," *Highpoints*, April, 1943, pp. 67-71. (Publication of the Board of Education concerning high points in the work of the high schools of New York City.)

Gates, Arthur I., and Miriam C. Pritchard, "Teaching Reading to Slow-Learning, or 'Dull-Normal,' Pupils," *Teachers College Record*, January, 1942, pp. 255-263.

Board of Education of the City of New York, *Final Report of the Public School 500 (Speyer School)*. Publication No. 12, 1941, pp. 1-75, especially 31-37 and 65-69.

¹ Kirk, Samuel A., *Teaching Reading to Slow-Learning Pupils*, Houghton Mifflin Company, Boston, 1940.

² These materials were prepared under the writer's direction by Dr. Ruth Strang and Helen Puls Searcy; the experiment described later was in charge of Dr. Helen Thompson. The experiment is described in detail by Helen Thompson, *An Experimental Study of the Beginning Reading of Deaf-Mutes*, Teachers College Contributions to Education No. 254, Teachers College, Columbia University, New York, 1927. The theory underlying the program is explained in Arthur I. Gates, "Methods and Theories of Teaching the Deaf to Read," *Journal of Experimental Research*, June, 1925.

ing of congenital deaf-mutes who began the work with no knowledge of the English language in any form, and who could not read lip movements, or written or printed words.

The materials used for this method consist of a number of pads of exercises and other matter and a blank dictionary book made of light card in which the dictionary cards are placed as they are reached.

The Teaching Method. The main characteristics of this method are as follows:

1. The presentation of each word in a variety of contexts—in connection with real objects, actions, demonstrations; with various pictures of single objects, and complex events; with activities dealing with realities by means of printed commands and exercises; with things to do such as to cut, color, draw, arrange, or to solve problems; and, later, with varied contexts in story and paragraph form.
2. Prevention of the practice of errors by acquiring the mastery of each step in the work before others are attempted. The steps are graded for this purpose and attainments are measured by objective-test exercises.
3. Provision for wide individual differences with plenty of reserve material for the very slow learners.
4. Provision for the development of all phases of silent reading without oral directions and without phonetic or other auditory or oral methods.

The Devices Used. The particular devices mainly utilized are as follows:

1. *Introducing words.* The pupils are first taught to recognize their own names which are made on cards in printscript. Next, they are introduced to words, mostly sentence words, such as *come, sit, bow, go*. These words are presented first in large type similar to that used in ordinary flash cards. When first presented, the meaning of the word is indicated by connecting the word form with the concrete object, such as a *bat*, or by dramatization of the action, as in the case of *stand, walk*, or by the arrangement of the situation, such as *under*.

Instruction for Pupils Seriously Deficient in Hearing

In order to prevent the association of the word with only the situation with which it is introduced and to develop its general class significance, it is immediately associated with various objects, actions, and situations. When feasible the word is presented with others of an opposite or unlike meaning; thus, *big* is presented in contrast with *little*, *under* with *over*, *boy* with *girl*, *one* with *two* or *three*, *walk* with *run* or *swim*.

A few of the particular devices used to extend the significance of a word are as follows: The teacher, after dramatizing each word for the entire group, holds up the word card while the children respond by the action. Then she combines the word with a name card, such as, "Dorothy, stand." "Peter, stand." "Dorothy, sit." "Robert, stand." In the case of *flowers*, the children point to flowers in the room, or put their word card *flowers* by any flowers in the room. Several children may be allowed to label with their own cards all the flowers in the room. The meaning of the word *flowers* may be further extended by having a chart with the word *flowers* printed on it and allowing the children to draw or paste pictures of flowers beside it.

During the day these word cards will be found useful in many situations. If the teacher wishes a child to come to her, the child's name and the sentence, "Come to me," may be held up. If the teacher wishes a child to sit down, the child's name and the word *sit* may be used. As the vocabulary increases, printed directions may be used in carrying out various necessary classroom activities.

2. *Use of the record sheet.* When two or three children show accurate recognition of the words in the group work, they may leave the group, and use the record sheet (which is merely a sheet with the words in a column at the left with spaces for entries at the right of each word) and their own word cards for individual study. The teacher shows these children how one child (the "teacher") should hold up the printed side of the card and how a second child (the "pupil") should dramatize the word, and how a third child (the "recorder") should identify the word on the card with the same word on the record sheet. A cross should be placed after the word every time it is responded to

incorrectly. The three columns on the record sheet are for the records of the three children who play. If only two children play, the "pupil" may also record his response with the "teacher's" approval. The children take turns being "teacher," "pupil," and "recorder."

3. *Use of the dictionary cards.* The dictionary cards for each new word appear at the proper places in the material. Two cards for each word appear on each page. The pupil cuts them out, places one in the dictionary (first having been shown how to use the alphabet index) and the other in an envelope for use in individual and group study and games. A sample of the dictionary card sheet is given on page 514.
4. *Introducing abstract words.* Words which signify abstract facts such as *a, the, his, by, and* are introduced gradually in relation to other known words after a certain number of common nouns and verbs have been learned and after skill in the use of several word, phrase, and sentence-comprehension devices has been acquired.

Practice Materials for Word, Phrase, Sentence, and Paragraph Meaning. In these exercises the words to be learned are repeatedly introduced in new contexts and in different types of self-corrective exercises. Some of them are so arranged as to increase the sharpness of perception. The most commonly used materials are the following:

1. Word-selection exercises in which certain words reappear in each set in different pictorial settings (see illustration on page 515).
2. Phrase selection exercises in which phrases may reappear in different verbal as well as different pictorial contexts (see illustration on page 516).
3. Sentence selection exercises similar to 2 (see illustration on page 517). For the deaf these materials must be more carefully constructed, the vocabulary more rigidly controlled, the amount and variety of practice made more extensive than for the normal child of average intelligence.
4. Printed directions and commands which increase gradually from brief phrases to short paragraphs are used frequently to keep

Instruction for Pupils Seriously Deficient in Hearing

alive the contact with reality and provide relief from seatwork. Most of these are arranged to contribute to the development of the meaning of some abstract word.

5. Directions to cut, color, draw, solve problems, and the like, are used in abundance. Since these exercises are excellent materials for introducing and enlarging the meaning of many abstract words, we may indicate here the general procedure followed.

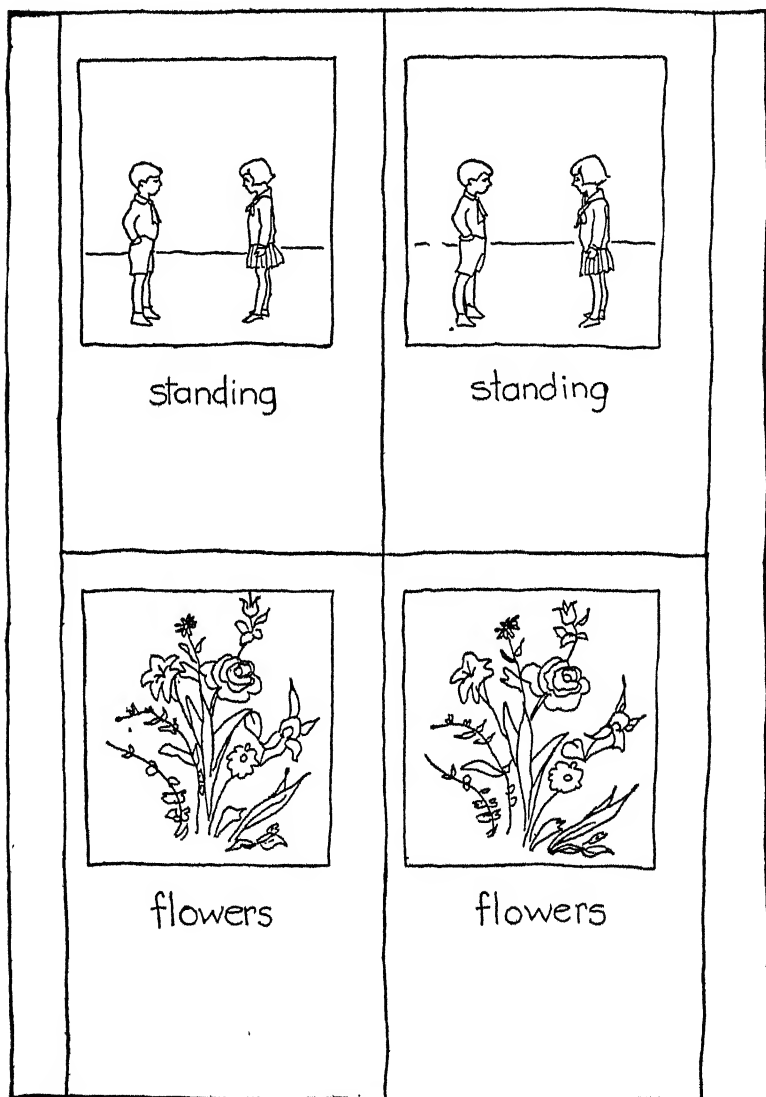
Introducing Prepositions, Adjectives. Prepositions and adjectives are first dramatized in natural contexts and treated in a manner similar to that used with action words. On the first practice page in which the new preposition is introduced, the other words are kept constant and the word contrasted with others, "The book is—by the table—on the table—under the table—over the table." Other exercises for prepositions are shown on pages 516, 517, and 518; and for adjectives on page 519.

In the case of pronouns and auxiliary verbs, much practice is given in the context on the practice pages and in the directions and questions. The child sees the word in sentences, just as the hearing child hears it in talk and as adults read it, recognizing it as part of good English usage.











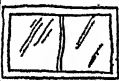







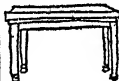





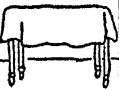






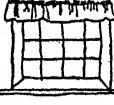
In the direction, "Color the boy *who* is running," the child learns to get the meaning without reading the word *who*, but by repetition he becomes accustomed to seeing it there and acquires some idea of its significance. The situation is similar with "Flowers *are* on the table," "Where *does* the dog go?"



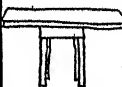




















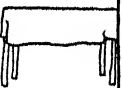








Many other forms of exercises may be used, some of which are illustrated on page 521.

Paragraph Comprehension Exercises. Every word introduced is used not only in all the exercises just mentioned but in many different paragraph contexts. The paragraphs and passages are of many kinds, including reading for many purposes. In many cases, stories are composed entirely of words already so well known that the child is left free to enjoy the content. In other cases, paragraphs are arranged with new or little-used words in order to provide exercises in utilizing the context in discovering the word's meaning. Jingles, puzzle paragraphs, and a series of "Story Books" built from familiar



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flowers				
table				
table				
flowers				
flowers				
table				
flowers				
table				

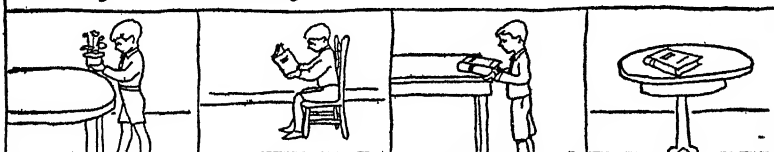
a big table				
a bunch of flowers				
a big bunch of flowers				
flowers are on the table				
The flowers are tall				
The table is big				
The girl is on the table				
The girl has flowers				

Instruction for Pupils Seriously Deficient in Hearing

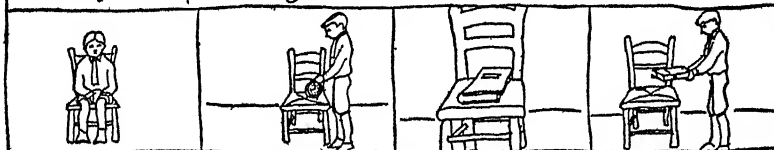
A girl is putting flowers on the table.



A boy is putting a book on the table.



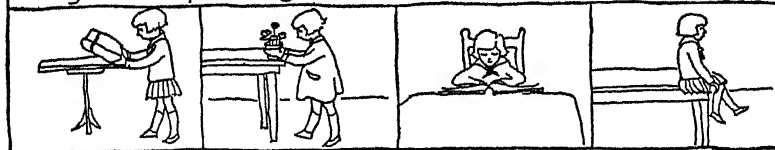
A boy is putting a book on a chair.






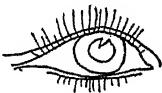














A girl is coming to the table.





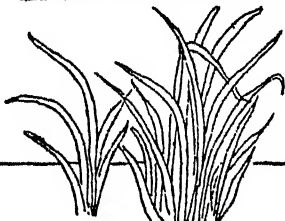
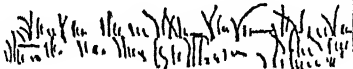
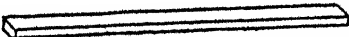
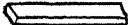


A girl is putting a book on the table.


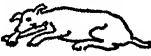

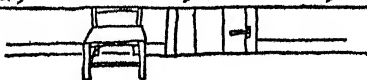




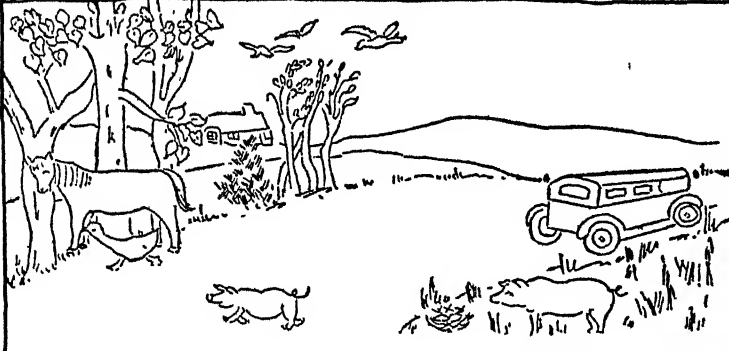
Directions

		
Put an X on the foot		
		
Put an X under the eye		
		
Put an X over the eye.		
		
Put an X over the head		
		
Put an X on the clock.		
		
Put an X under the boy.		

Instruction for Pupils Seriously Deficient in Hearing

Long long	Short short
 a <u>long</u> pencil	 a <u>short</u> pencil
 <u>long</u> grass	 <u>short</u> grass
 a <u>long</u> piece of wood	 a <u>short</u> piece of wood
 a girl with a <u>long</u> dress on	 a girl with a <u>short</u> dress on

Name	Date	Questions
		 <p>What is playing?</p> <p>A book A boy A ball , A baby.</p>
		 <p>What is eating?</p> <p>A cat, A doll , A dog , A bed.</p>
		 <p>What is under the table?</p> <p>A sled, A book , A fire , A shoe.</p>
		 <p>What is by the door?</p> <p>A child , A clock , A chair, A table.</p>
		 <p>What is by the door?</p> <p>A fire, A flower , A foot, The feet.</p>
		 <p>What is jumping over the chair?</p> <p>A door, A finger A doll, A dog.</p>

Questions

What is going across the road ? a pig, a pie, a pencil, a chicken.
What is going down the road ? an animal, an automobile, a policeman, a duck.
What is on the big trees ? bread, birds, leaves, trees.
What is flying over the little trees ? bridges, birds, leaves, trees.
Where is the nest ? In an automobile. In the road. In the tree. In the grass.
Where is the duck ? By the pig. By the house. By the hen. By the horse.

terms are used at regular intervals. Nearly every unit is provided with checks upon comprehension in the form of problems in selecting pictures, carrying out directions, choosing phrases or key words.

Results of Experiment on Deaf-Mutes. By such devices as these, we sought for the deaf-mute pupils (*a*) the development of ideas in association with word-forms, (*b*) the development of appropriate perceptions, eye movements, and other mechanical habits of reading, (*c*) the development of ability to read connected materials in useful ways for useful purposes, and (*d*) the development of intrinsic interest and satisfaction in reading.

Results of a first year of investigation of the use of these materials with deaf-mute children may be briefly summarized. Two groups of congenitally deaf children who had practically no language ability of any sort were the subjects. The two groups were equivalent in age, intelligence, and other relevant respects. The average age in each group at the beginning of the study was six years and ten months. One group used the materials described here and the other followed the regular deaf-school methods for a period of an hour on five days weekly from October 1, 1925 to June 1, 1926.

The results, which are given in detail in the dissertation of Dr. Helen Thompson,¹ are given in part in the table below. The figures

TABLE SHOWING SCORES ON FOUR READING TESTS OBTAINED BY THE EXPERIMENTAL GROUP, USING METHOD OUTLINED ABOVE, AND CONTROL GROUP, USING REGULAR DEAF-SCHOOL METHODS

(Average Scores for Normal Children at End of Grade 1 Are Also Given)

	DETROIT READING TEST SCORES	GATES PARAGRAPH READING TEST SCORES	GATES SENTENCE READING TEST SCORES	GATES WORD READING TEST SCORES
Experimental group	19.9	5.4	18.5	23.4
Control group	5.5	0.1	11.1	13.7
Normal pupils at end of Grade 1	20.0	5.7	18.0	21.2

¹ *Op. cit.*

Instruction for Pupils Seriously Deficient in Hearing

show that the group taught by these methods excelled those instructed by the regular deaf-school methods by large amounts. A more convincing demonstration of the value of the new method appears in the comparison of the attainments of the deaf group with the achievement of normal first-grade pupils in the public schools. The deaf-mute group obtained a score almost identical with the average attainments of pupils in Detroit schools on the Detroit Reading Test and the scores on the preliminary forms of the three Gates Reading Tests are as good as, if not a trifle superior to, the average achievements of normal New York City pupils.

In comparison of the achievements of the deaf-mute groups with those of normal children, several limitations of the former should be considered. The main ones are as follows:

1. The deaf-mutes came from exceptionally poor homes; they were in a charitable institution.
2. The deaf-mutes had zero ability in all forms of language.
3. The deaf-mutes' reading was limited entirely to an hour or less for five days a week; they had very little experience in writing, speaking, and so forth, during the year, compared to the normal child.
4. Because of lack of previous experience the deaf-mutes were poorly adjusted to any kind of book work.
5. The teachers of the experimental deaf-mute groups were inexperienced both in managing deaf-mutes and in using our materials.
6. The materials used, being all mimeographed at the time, were crude in type, drawing, and so forth, and in clumsy forms.
7. The total period for the deaf-mutes was nearly two months less than the year for normal New York City children.

The materials and methods just described were developed for pupils totally deaf. Since these pupils were quite unfamiliar with oral language, it was necessary to use methods of introducing word meanings which would be artificial and unnecessary for pupils able to hear and familiar with spoken words to some extent. For the deaf-mute children, the study of new words and the attack upon unfamiliar ones had to be based upon visual features, since no sounds

Instruction for the Extreme Disabilities of Handicapped Pupils

could be used. By pointing out common visual characters such as syllables, phonograms, letters, and features of general configuration, by contrasting words having certain common and certain distinctive features, by inducing the pupils to search for and find these characteristics among familiar words and to look for them in new ones, it was possible for these pupils to learn to note the visual characteristics of words very effectively and to use them in study and recognition. Indeed, their observation of words becomes unusually acute, a fact revealed by the high efficiency of deaf-mutes in spelling.¹

Instruction for Pupils with Less Serious Auditory Defects

It was pointed out in preceding chapters that auditory clues are valuable additions to visual clues in word perception. If a pupil is capable of learning, without great difficulty, to use auditory clues, such as those utilized in phonetic translations of syllables, phonograms, or letters, he should be helped to do so. If, on the other hand, he lacks aptitude for learning the sound characteristics of words, he might waste time and effort and become annoyed and discouraged by excessive effort to acquire the auditory techniques. The studies of deaf-mutes have shown that auditory devices are not indispensable. The problem, then, is one of knowing when to use the auditory approach and when to depend upon visual methods.

No simple, routine answer can be given to this question. In general, one can say merely that for the pupil who lacks auditory or phonetic aptitude, the visual approach should be emphasized and the less auditory aptitude the pupil has, the greater use one should make of visual methods. Whether to emphasize auditory devices is best determined by a trial of such methods until the examiner, through experience, learns to foretell the consequences of such a trial by means of the results of the diagnostic tests. If a trial shows unsatisfactory progress in phonetic work, the auditory devices should be given up or reduced to a secondary role.

¹ Gates, A. I., "Methods and Theories of Teaching the Deaf to Spell," *Journal of Educational Psychology*, June, 1926.

Instruction for Pupils Who Know Little or No English

If dependence is placed upon the visual approach, it is obvious that more attention should be given than otherwise to the development of familiarity with the visual features of words and the use of these characters in learning new words and working out the recognition and pronunciation of unfamiliar ones. More attention and guidance should be given also to the development of good (and also harmonious) techniques in spelling, handwriting, and typewriting. As regards methods, one should try first those suggested for ordinary cases and supplement or vary in the direction of the more specific devices mentioned in Chaps. 9 and 10, as needed. In general, what these pupils will need is a larger amount of demonstration, guidance, and experience.

It should be realized, however, that certain pupils whose deficiency consists wholly in a moderate degree of hearing loss, for example, from 10 to 20 units on the 2A Audiometer, can learn as normal children do provided they are near enough to the teacher and other pupils to hear all that is said. But even in these cases, a relatively large amount of self-directive seat work (workbook exercises) is of great value, and extensive phonetic instruction and oral work puts them to a disadvantage.

Instruction for Pupils Who Know Little or No English

The choice of an optimum program for pupils who enter school with little or no familiarity with the English language depends greatly upon three factors: the degree of familiarity with English, the general intelligence, and the degree of ability to read another language. For the child beginning school with a low intelligence quotient, unable to read any language and unable to understand or speak English, a program embodying most of the features described earlier for pupils of low intelligence, combined with word-form and word-meaning materials, such as those described for deaf-mutes, has proved to be very serviceable. The less the pupil is handicapped in any one or more of these respects, the less extensive the supplementation with the deaf-mute type of materials needs to be. Needless to say, if the teacher can speak the pupil's native language,

Instruction for the Extreme Disabilities of Handicapped Pupils

she should save time by doing so in her instructions until the pupil has acquired some mastery of English. Similarly, the pupil should be taught to understand and to speak the words he is to read before trying to read them. Oral reading should form a part of the pupil's program, but it should be sagaciously used so as not to result in undue confusion resulting from combining the difficulties of reading with those of pronunciation.

There is a widespread belief that a heavy dose of phonetics is good for the foreign pupil. The writer doubts the advisability of introducing unusually extensive work in formal phonetics in reading instruction for foreigners. It seems preferable to handle pronunciation and articulation in conversation or "Oral English" apart from reading. In this work, instruction in articulation, enunciation, and pronunciation should be given. The writer believes that the early stages in reading should not be disturbed and interrupted by lessons in pronunciation or by much correction of mispronunciations. Words mispronounced in oral reading should be noted and corrected at another time.

Instruction for Pupils with Defective Vision

The importance of vision in reading and methods for diagnosing visual defects were outlined in Chap. 4. In most of the larger public schools it is customary to organize "sight conservation classes" for children seriously deficient in vision. In New York City all children with a visual acuity of 20/50 or less in the better eye, after refraction, are assigned to sight conservation classes. In some cities these children are taught in segregated sight conservation classes but in others they spend much of their time in regular classes and some of their time in special sight conservation classrooms in which they are given special instruction in reading and opportunities for reading. Children with less serious defects are usually retained in the regular classroom. A study of practices in sight conservation classes made by Frances H. Mitchell¹ shows that they suffer chiefly

¹ Mitchell, Frances H., *A Plan for the Improvement of Reading Instruction in Sight Conservation Classes for the Public Schools of the City of New York*, 1940. This is an
chapter 16

from limited materials and other facilities which make it difficult to provide a program equally as rich and varied as that found in the better schools for normal children. The work in the sight conservation class is usually carried on with materials printed in 24-point type, or prepared with a typewriter of about the same size, or printed on cards or the blackboard in large-sized type.

These materials are very limited in quantity and many of them are rather restricted in character. Since children with seriously deficient eyes are restrained from doing much reading in the regular classrooms, the sight conservation pupils suffer from lack of experience. Perhaps the greatest single need for these children is a larger quantity of all the best types of children's reading matter printed in form suitable to their use.

A survey of the literature shows that the evidence that 24-point type is the optimum for sight conservation pupils and that a reasonable amount of reading of materials in smaller type should not be permitted is not very extensive or conclusive. An investigation conducted by McNally¹ indicated that these pupils read quite as rapidly and made no more frequent "eye blinks"—which has been suggested as a test of visual fatigue—when reading 12-, 14-, or 18-point type than when reading 24-point type. This author admitted, however, that the evidence concerning the influence of reading these different sized types on eye fatigue was not conclusive and that the "eye blink" test may not be a very valid one. Further investigation on the possibility of giving sight-saving class pupils a wider range of reading ability in smaller type, say, 18-point, is seriously needed. The present limitation of printed materials in large-sized type is a very serious handicap in the education of these pupils.

Ed.D. project report and is available only in typewritten form. A few copies are available in this form in the Teachers College Library. A brief résumé of Dr. Mitchell's report will be found in the report of the "Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of the City of New York," Report of the Reading Subcommittee for the Visually Handicapped, Board of Education of the City of New York, New York, 1940.

¹ McNally, Harold J., *The Readability of Certain Type Sizes and Forms in Sight-Saving Classes*, Teachers College Contributions to Education No. 883, Teachers College, Columbia University, New York, 1943.

The sight conservation classes need not only more material but the wider variety of reading experiences enjoyed by children in normal classes in the better schools. They need especially a close correlation between reading activities and other means of learning, such as discussions and oral activities, listening to oral reports by the teacher or the pupils or the radio, the use of pictures and sound motion pictures, exploratory, dramatic, artistic, and other activities. In many classes better morale and important special skills may be cultivated by making extensive use of oral activities in connection with the reading lessons. Some of these children may acquire special talents in oral reading without greatly extending the amount of eye work. The visually handicapped pupil is, of course, at no disadvantage in the use of the oral characteristics of words or the phonetic procedures in learning to work out the recognition and pronunciation of words. Some of them are disposed to become rather expert in the phonetic aspects of the work. This does not mean that these children should be taught by a rigid analytical phonetic procedure. On the contrary, it is advisable for them to attempt to recognize words by the largest possible units, such as syllables, so as to reduce the amount of detailed eye work on each word to a minimum. Children with poor vision should be encouraged to recognize as many words as possible as wholes and in case of difficulty to make the analysis in terms of the largest and fewest elements possible. They should emphasize not the sounds of individual letters or minute phonograms but rather sounds of constituent words or syllables rather than the smaller details in their phonetic analysis.

Care must be exercised to see that children with visual defects do not read enough to fatigue or injure their eyes. The advice of the physician should be sought in the matter of time allowances for reading activities. The teacher should not exclude the pupil from reading class activities but make arrangements to enable these pupils to participate. When silent reading is being conducted they may spend their time doing some other work related to the activity. When the period for oral reading or discussing results is reached the teacher may suggest that some of the pupils read sections of

References

the selections orally or review them in brief form, thus enabling the pupil with defective vision to enter into the program.

Children with less serious deficiencies seem to require no special variation from the rich and varied program suggested for normal children except that it may be advisable for some of them to rest their eyes frequently and to read less extensively. As far as the fundamental techniques are concerned they should be able to master the same types of abilities as the normal pupil except that they should probably emphasize the larger units in words and attempt to recognize words on the most general clues in order to conserve their vision by reducing the number and complexity of eye movements. These children should be able to learn to recognize words in thought units and it is profitable for them to do so since once this ability is acquired the actual amount of eye work is reduced. Visual difficulties, however, take many forms and if possible the teacher should secure the advice of an expert concerning the precise nature of each pupil's limitation and the special dangers to be avoided.

References

See references in Appendix 1, Part B, and the several books cited in the footnotes in this chapter.

Exercises

1. What is a nonreader? What determines the choice of remedial methods to be used in giving him remedial instruction?
2. What are the remedial program requirements for extreme disability cases? What are the qualifications of the good remedial teacher?
3. Describe the Fernald-Keller method of reading remediation. What are its strengths and weaknesses?
4. Describe briefly Monroe's method of remediation. What are its weaknesses? What is its primary difference in emphasis from the Fernald-Keller method?
5. Describe the visual study approach.
6. Describe the general order of procedure used by remedial reading teachers in New York City under the Civil Works Administration.

Instruction for the Extreme Disabilities of Handicapped Pupils

Was such a program best adapted to group or to individual teaching? What conclusions were expressed by the teachers about the efficacy of particular teaching methods?

7. What should be the primary difference between a typical reading program and one for pupils of low intelligence? What differences often found are considered unjustified by the author? Describe the experiment on which he bases his conclusions.
8. Study carefully the methods used in successfully teaching deaf-mute children to read and note their similarities to and differences from methods used in teaching reading to normal children. Do the similarities or differences predominate? Would you say the differences were in content or in emphasis?
9. What methods should be stressed with children who lack auditory or phonetic aptitude? With children who have a slight hearing loss? With children who suffer from a language handicap?
10. What type size is generally used in sight conservation classes? What problem does this raise in securing a variety of reading material for children with defective vision? How may the reading experience of such children be supplemented? What special plans should be made for children with visual defects who are members of regular classes?

chapter 17 Case Studies of Reading Disability

The present chapter includes discussion of cases that illustrate several important types of reading difficulty. The cases presented here are predominantly those whose difficulties might have been prevented. In order to present cases studied by means of the new diagnostic tests described in this book, it has not been possible to restrict the discussion to those which have been followed up for an extended period of time. The reader will profit greatly in reading these cases if he is familiar with the diagnostic tests, which are described in Appendix 2, Part I, pages 577-629, and if he refers to the norms which appear in pages 630-641.

The writer believes that study of the reports of individual cases is of great value in learning to conduct diagnostic and remedial work. For this reason, he regrets that space in this book—which is intended primarily to serve as a manual—is not available for many such records. He hopes, however, to give more attention to case studies in a later work.

Case 1. A Sixth-Grade Boy Deficient in Syllabication and Related Word Analysis Skills and in Experience in Reading

Case History. Case 1 was referred to the examiner because of difficulties in all phases of his schoolwork during the second half of the sixth grade. He was reported as "sullen and indifferent" in school. He had two brothers who were better, but by no means brilliant, pupils. His father ran a good hardware store and his mother was an amiable housekeeper. He had never been a "problem" aside from his backwardness in his school subjects. He was near, or slightly below, average in his reading during the first two grades but began to lag during the third grade and each year thereafter he became more conspicuously retarded.

Case 1 did little reading except the required work in school. The home contained practically no books or periodicals. His parents rarely read anything but the tabloid newspapers. During the evening, they listened to the radio, played cards, or went to the movies. The home neither encouraged Case 1 to read nor rewarded him if he did.

Diagnosis. Case 1's scores on various tests are shown on the reproduction of page 1 of the Record Booklet for the *Gates Reading Diagnostic Tests*, shown on page 533. His Stanford-Binet I.Q. of 95 indicates that he has a "low normal" intelligence. His mental grade of 6.4 is only slightly lower than the average for his actual grade of 6.7.

His scores in five silent reading tests center closely about Grade 3.7, or three grades lower than his grade position in school. Table I in Appendix 2, Part II, shows that, using grade position as a base, these reading grade scores are given a rating of V.L. (very low). Oral reading is even poorer, grade 3.1.

He read in an artificially high-pitched voice with signs of emotional tension. When he encountered unfamiliar words his concern was obvious and he appeared to attempt to work them out by a detailed study of the word form as a whole and the technique of naming and sounding letters, usually with little success. The dis-

tribution of his errors on the first four paragraphs of the Gates Oral is shown on the record sheet. The ratings are derived by using his average score in the *Gates Oral Reading Test* as a base. They are all M scores. He is therefore retarded, immature in all these techniques. His approach is that of the average child just entering the third grade. Probably he had "leveled off" his development of reading skills when he reached this stage several years before.

Case 1 made reversal errors both in the Gates Oral and in the isolated word Reversal Test, but they were typical (M) of those of the average child with a grade 3.1 ability in oral reading, or 3.7 in silent reading.

In the quick perception tests (Phrase Perception and Word Perception, Flash Presentation), his grade score is just a shade lower than his average silent reading and a shade higher than his oral reading grade score, giving him a rating of M in either case. His spelling is even poorer than his reading, and his technique was a letter-by-letter spelling with little skill in organizing the letters into syllables.

Although an experienced examiner would not need to give them, all the Visual Perception Tests were given. A most significant fact was revealed. He is very poor in dividing words into syllables and phonograms and working out the recognition of unfamiliar words by syllabication. Note that when words are "flashed" and must be recognized as wholes, he gets a grade score of 3.5, but in Syllabication, Recognition of Syllables, and Recognition of Phonograms, his grade score is about 2.5, a grade lower. He is better in Blending Letter Sounds (grade 3.2) and he got perfect scores in Giving Letter Sounds and Reading Letters. Here is a boy whose techniques are limited to recognizing words as wholes, and failing in this, he resorts to letter-naming and sounding. The latter served the purpose fairly well in the first two grades, but were unequal to the demands of the higher grades. The tests of Auditory Techniques show that Case 1 has a good basis for working with word sounds and a test showed his hearing to be normal. His failure to learn to utilize syllables and larger word parts in working out the recognition of long words is not based on auditory deficiency but due to failure to

Case 2. General Weakness of Reading Techniques

acquire the technique of finding, recognizing, and combining the larger units in words.

The pupil's difficulty was diagnosed, therefore, as due to failure to acquire the more advanced types of word-analysis techniques and to sheer lack of experience in reading. The recommendation was for a program of remedial work in word analysis and a budgeting of time and materials for more reading at home and school.

Treatment. An astute reading specialist tutored Case 1 for thirty to forty minutes a day in word-study methods along lines similar to those recommended in Chap. 9, the school arranged his program to provide an hour of free reading for fun in the library daily, and the parents arranged a daily evening reading period for the whole family at home.

Tested three months later, Case 1 showed a marked improvement in all the word perception tests and a considerable improvement in oral and silent reading. The *Gates Basic Reading Tests*, Types A and B, showed an average reading grade of 4.9, and the Gates Oral 4.2. He was still fairly tense in oral reading, but his power had increased. In the Syllabication Test he got within one point of a perfect score and a perfect score both in Recognition of Syllables and Phonograms. The child was reported as making steady improvement during the next school year. He will probably develop reading ability nearly to the level of his mental age, but he is not a scholarly type and will probably never be a devoted reader or scholar. Learning to read better has improved his personality and morale in general and has made it possible for him to enter junior high school with prospects of going to a trade school later.

Case 2. General Weakness of Reading Techniques

Case History. Case 2 was a boy from a middle-class American family whose two older sisters had done better-than-average work in school. He was examined near his ninth birthday after about a month of time had elapsed since he began to repeat the high second grade. His actual grade status was thus 2.6. He had repeated the first half of the second grade and had been promoted in the hope

that advancement might stimulate him. The parents had made quite a stir both at home and school because of the boy's slow progress in reading. The boy was discouraged, at first, but apparently willing to try despite frequent "periods of dreaminess and inattentiveness" in school. He had no history of conduct troubles. He did rather good work in art and handicrafts. His health had been average. An eye examination reported only errors of refraction too slight to need correction. Hearing was normal.

Diagnosis. A Stanford-Binet I.Q. of 105 indicated that the difficulty was not due to mental retardation. On the *Gates Primary Reading Tests*, the following scores were obtained:

Word Recognition, grade score	1.8
Sentence Reading, grade score	1.7
Paragraph Reading, grade score	1.5
Median	1.7

This child is slightly weaker in Paragraph Reading than in Word Recognition. The median reading grade score is approximately one grade lower than the pupil's actual grade position (2.6) and two grades below the grade status (3.8) to which his mental age (9.45) corresponds. Thus, this boy is really reading at late first-grade level when his mental status is at late third-grade level.

In oral reading, this child earned a grade score of 1.7, which is about the same as his score on the silent paragraph reading test. His difficulty then is not limited to oral response as a result of some emotional "conditioning." In this test, he read slowly, saying such words as he could recognize at sight, and studying at length those that gave him difficulty. It was difficult to see what attacks he was using in trying to work out the recognition and pronunciation of unfamiliar words. His work was usually done silently. There were a large number of failures to make a "guess" within the time limit set for each word. The errors made in other cases were various. There were two reversals of parts ("got" for "dog") and various errors such as "came" for "cannot," "went" for "wanted," "sat" for "saw," "around" for "round." The pupil appeared not to know quite what to do when he encountered an unfamiliar word. He said

Case 2. General Weakness of Reading Techniques

he "just studied" the word. Sometimes he appeared to study the visual features; at other times he named the letters; at others he seemed to try to sound the letters.

On the *Gates Oral Reading Test* this pupil made fifty errors; of these, 44 per cent were omissions, 2 per cent were additions, 2 per cent were repetitions, and 52 per cent were mispronunciations. These scores are approximately the M scores for one making fifty errors on the test. That is, the pattern in this analysis is *almost identical with that of the typical pupil of grade 1.6 reading ability*. Analysis of the twenty-six mispronunciations shows the following:

	Errors	Rating
e. Full reversals	2	M
f. Reversals of parts	1	M
g. Wrong order e + f	3	M
h. Wrong beginning	6	M—
i. Wrong middle	3	M
j. Wrong ending	8	M
k. Wrong in several parts	6	M

These errors represent M scores for one making twenty-six mispronunciations on this test. Thus, the boy shows no outstanding tendency to make reversal errors or any other specific kind of errors. He is merely a rather typical instance of undeveloped techniques.

The Word Perception Test (untimed) gave a grade score of 1.8. Thus, the pupil is not noticeably weaker or stronger in a test of word recognition without context clues than in tests providing meaning clues, since the grade score in the *Gates Oral Reading Test* was 1.7. In the word pronunciation test he appeared to be weak, uncertain, and unsystematic in his attack. He fumbled with efforts to observe the word, as a whole, or part by part, or letter by letter. He trifled with sounding letters or guessing at syllables. He shifted from one device to another without plan. Often he seemed merely to be looking the words over aimlessly. Errors were therefore varied in type.

The Visual Perception Techniques were next examined. The scores were as follows:

Syllabication	1.6	M
Recognition of syllables	1.8	M
Recognition of phonograms	1.7	M
Giving letter sounds	1.6	M
Reading capital letters: Speed	1.7	M
Reading capital letters: Errors	1.6	M —
Reading lower-case letters: Speed	1.6	M —
Reading lower-case letters: Errors	2.0	M +

In interpreting these records, it is obvious, of course, that this child is very poor for one of his mental grade of 3.8 or actual grade of 2.6. But, for one of his silent or oral reading grade of about 1.7 he is about average, or M. Indeed, the uniformity with which his performance approximated the M scores is the main feature.

These results mean that this pupil is about as retarded in recognition of various phonograms, in blending, in sounding letters, and in naming either capital or small letters as he is in reading in general. He is, in other words, weak all around. He shows no outstanding weakness to be especially remedied or substituted for, and no relative strength to be especially utilized.

Next, the test of Auditory Perception Techniques was given. The scores were as follows:

	<i>Grade</i>
Blending letter sounds	2.2
Letters for sounds	2.4
Words, initial sounds	2.6
Words, final sounds	2.7

In these tests, grade scores are mainly higher and less uniform than in visual perception techniques. These supplementary reading techniques, which are of great importance in spelling, are, however, not very strong for one of this boy's opportunities and intelligence. The grade scores are really lower than the mental grade by a grade or more. Weakness, then, in dealing with the auditory aspects of

Case 2. General Weakness of Reading Techniques

words (which showed itself also in poor spelling) is found although it is less conspicuous than weakness in visual word techniques.

Case 2 was right-handed for most acts, but showed left eye dominance. Since he did not show a marked reversal tendency or other special difficulty associated with these factors, these data were of no obvious significance.

Reviewing this case, it may be said that no constitutional difficulty was found. The pupil showed primarily a widespread backwardness in all or nearly all the techniques essential to good reading, especially those falling in the category of visual word perception techniques. No single weakness, as in blending, appeared. The pupil, on the other hand, was the master of no single method of attack. He was weak in all the acquirable tricks of the reading trade. When a glance at a word failed to produce recognition, he was rather helpless. He did not know how to go about the attack. He floundered, shifted, struggled aimlessly. It seemed merely like a case of failing to acquire any of the devices which might have served reasonably well. And there is no obvious reason for the failure in the pupil's makeup. Motivation, moreover, was apparently fair. This case is, the writer believes, a general type that will be encountered frequently.

Treatment. This boy, having no clearly established handicap for acquiring the techniques of reading and possessing no special aptitude to suggest emphasis on any one of the several approaches, but being, on the contrary, undeveloped about equally in all lines, seemed to be in a position to profit by instruction in a variety of useful techniques. Having failed under ordinary forms of instruction, he apparently needed more detailed, intensive, and carefully applied guidance. Such a program was undertaken.

For basal materials the pupil started with a first reader and accompanying workbook. This was comparatively easy and wholly new reading matter for him. The reading of this material was supplemented with various activities. He became interested in developing a word-picture dictionary to include words encountered in his reading. The pages of his dictionary were reviewed when new words were added. The boy drew pictures to illustrate words when pictures were not easily found. He made up posters and placards from words

and sentences on the used workbook pages. He made booklets partly from these materials and partly from compositions written by himself in manuscript writing, which he was learning. He showed and read these to his older sisters and other members of the family. The teacher typed additional material composed largely from the words in the material then being read or that he had read previously, and in time found additional material in print which contained relatively few new words.

Careful instruction was given in studying the words systematically in the left-to-right order. The pupil was encouraged to search for distinctive visual word characteristics and common syllables and phonograms. He was urged to discover these elements and to look at them in turn in a word while pronouncing them first slowly, then more rapidly. He was encouraged to make up a catalogue of "families" or lists of words beginning with the same syllables, phonograms, or letters. Later, lists were made which contained common elements in any part, such as *in*, *into*, *pin*. These common elements were brought out by covering other parts of the words, aside from the common elements, then uncovering them, and rediscovering them by progressing across each word from left to right. For nearly two weeks, the pupil had difficulty in identifying the word parts but then rather rapidly, almost suddenly, he achieved an insight. From that point on he sought and found such elements with great zeal. He enjoyed picking them out in the words of previously read passages and in the unfamiliar words in new material. He would pick up a newspaper at home and demonstrate his ability to the family. He often underlined familiar parts of words which he recognized. They caught his eye in billboards, signs, and notices along the streets. From this point on he improved very rapidly.

The boy learned his letters rapidly through his work in making the dictionary and word lists and in manuscript writing. After they were well learned, he was taught the more distinctive letter sounds. This was begun with work in making the dictionary, beginning with the sounds of initial word letters. He learned rapidly and was taught to guess the word sounds by a rapid, continuous blending process when the word could not be gotten in larger units. The

Case 2. General Weakness of Reading Techniques

blending was for a time difficult, but it was, after several weeks, eventually mastered fairly well, although it was never used as the first and primary technique.

It should be understood, of course, that during this month the pupil was doing much reading of material which introduced relatively few or no new words. To avoid the risk of letting his interest in word study lead to a neglect of thought-getting and to the neglect of the development of basal habits of full-fledged reading, generous provision was made not only for reading satisfying content, but also for checking up and emphasizing comprehension. The exercises in the workbooks were very useful for this purpose. The boy developed great pride in demonstrating full and accurate understanding in working out these exercises, especially in those which included words readily confused with each other. The comparison of these words for the purposes of "getting the low-down" on them became fascinating to him.

The first reader and accompanying workbook with much supplementary material were covered in about three and a half weeks. The second-year materials in the same series were then undertaken. They were covered in the next four weeks, with much supplementary material. The third-year materials were then taken up and read, with some supplementary material, in less than four weeks.

Results. The three *Gates Primary Reading Tests* were given about seven and a half weeks after the beginning at the time when the second-grade books were completed. The boy earned the following scores:

	<i>Grade</i>
Word recognition	2.7
Sentence reading	2.8
Paragraph reading	2.5

A month later, after completing the third-grade material, another form of the test was given in which he made substantially perfect scores. *The Gates Basic Reading Tests*, Forms A and D, were then given, on which his scores were grade 3.7 and 3.4 respectively. The pupil had thus advanced from an average reading

grade of approximately 1.7 to one of 3.55, a gain of about 1.8 grades in less than three months, during which time the remedial teacher spent about an hour and a quarter daily with him. His gain in interest and attitude and in the basal techniques, however, is the really important thing. At the time of the final test, the boy's chronological age corresponded to a grade status of 3.8 and his mental age to a status of about 4.0. There is every reason to expect Case 2 will continue to gain until his reading grade equals or exceeds his mental grade.

Case 3. General Weakness in Reading Techniques and in Native Equipment

Case History. Case 3 was a boy eight years and nine months old and nearing the end of Grade 1 at the time the test was given. He was considered very dull, and it was thought that he should perhaps be placed in a special class. This boy's father was a taxi driver, born in Ireland, and his mother was an American-born Irishwoman. He attended a metropolitan public school. He had an older brother who had less difficulty in school, but whose work was below average for his age. The boy had little interest in school. His health was not very good and his school attendance was spotted with absences. His parents were irritated about his school difficulties and their treatment of the boy in this connection was not highly sagacious. He was himself superficially irritated rather than deeply concerned about it.

Diagnosis. Case 3 showed a widespread weakness in the fundamental reading techniques similar to, but more pronounced than, that of Case 2. His scores on the *Primary Tests* were: Word Recognition, grade 1.5; Sentence Reading, grade 1.4; and Paragraph Reading, grade 1.3. His score in Oral Reading was grade 1.5 and in the *Gates Word Recognition Test (untimed)* 1.6. When attempting to work out the recognition of a word, he seemed to look it over more or less at random, in miscellaneous order, although the first survey was most frequently from left to right. The errors were of all sorts; many of them consisted in giving words which re-

Case 3. General Weakness in Reading Techniques

sembled in some detail the printed word he was considering. In the *Gates Oral Reading Test*, which was very difficult for him, he revealed all sorts of errors with a greater than typical proportion of reversals, wrong beginnings, and wrong endings. The number of total failures to make any guess was unusually large. In the Reversals Test he showed numerous errors of all sorts, with reversals and wrong beginnings slightly more numerous than is normal for those making an equal number of errors. He found the Visual Perception Techniques Tests almost completely baffling. He could do little or nothing with the Syllabication, Recognition of Syllables, and Recognition of Phonograms Tests. He was very slow in naming the letters and miscalled fifteen capitals and eighteen lower-case letters. In blending letter sounds he earned a low grade score of 1.7. He could name only a few letters corresponding to letter sounds and failed to give any word beginning or ending with a prescribed sound. He could write eighteen of the letters, although as shown above he could not recognize all of them in print.

Case 3 revealed almost none of the techniques essential to or useful in reading. Further tests were therefore given to see whether this limitation was probably due to inferior capacities or merely to failure to learn what might have been learned under better guidance.

The Stanford-Binet test gave him an I.Q. of 82. This is below average but many children with as low an I.Q. learn to read above the Grade 2 level. In a test of memory span this boy received low scores for digits, letters, and words. In the *Gates Associative Learning Tests* he showed marked irregularity, getting L scores on two tests, a VL score on one, and an M score on one. An eye examination showed mild presbyopia in one eye, slight astigmatism in the other, and possibly some heterophoria. Oral expression and diction were rather poor, and motor coordination was inferior. He showed right-eye and right-hand dominance—not pronounced, however, in the latter case. His auditory discrimination was only fair.

Case 3, in brief, presented a picture of moderate constitutional inferiority. He was a little weak in nearly all the capacities tested. He seemed to be, similarly, slightly below average in general vigor, emotional stability and responsiveness, and mental integration. The

teachers reported him as a rather listless, unambitious boy in most fields of endeavor in and out of school. His difficulty in reading, which appeared to be somewhat more marked than his other limitations, was perhaps the result of combined weakness in intelligence, vision, perception, phonetic sense, and other capacities. To learn to read requires concentrated attention and a well-integrated and directed attack from a child of this boy's intellectual level. Constitutional weaknesses in vision, visual perception, associative capacity, memory span, auditory discrimination, and the like, together with a low-level dynamic or volitional support, are sufficient handicaps to make the child continually fall short—perhaps often just a shade short—of grasping the essential techniques and achieving insight. This is the story of Case 3.

Treatment. The inventory of the techniques of this case gives a pattern similar to that of Case 1, except that it shows more immaturity. The needs for remedial instruction are similar, except that materials should be easier and more slow-moving, and instruction should be more detailed, more specific and simple. Such a program was undertaken, beginning with primer materials and expanding them along the general lines suggested for the extreme disability cases in Chap. 16. The letters were taught early in connection with the use of the *Word-Picture Dictionary*, and a variety of word games was employed. The teacher also taught the pupil to write and later to use many of the words in print-script compositions, posters, placards. More intensive work on the translation of letters and two-letter phonograms into sounds was undertaken than with Case 1. The teacher also had the boy make up a set of word-picture cards which were used in a variety of games and activities. For a time, some of the intensive studies of the left-to-right order of progressing across the word and line of print suggested in Chap. 10 and some of the detailed comparisons of word forms suggested for extreme cases in Chap. 16 were employed.

Results. Needless to say, progress with Case 3 was by no means as rapid as with Case 1. The boy did not achieve either zest or insight so quickly. After two weeks of what appeared to be rather futile work, he did, nevertheless, take a distinct turn for the better.

Case 4. Ninth-Grade Pupil Whose Reading Was Slow and Labored

He came to show about as great an interest in the general program of activities as he ever showed in anything, and began to make real progress. At the end of one month of remedial work (about one hour a day), he could read very well in the primer and workbook, and could go ahead with new assignments with little help. There was obviously great improvement in basal techniques. Five weeks later he had completed the primer program. The first reader books were then undertaken and covered, in addition to supplementary material, during the following seven weeks. At the end of this time, his reading scores were:

	<i>Grade</i>
Word recognition	1.9
Sentence reading	1.8
Paragraph reading	1.95

These scores represent a status about one-third of a grade below the pupil's mental grade. Two months later, at the end of the school year, the boy had nearly completed a second-year program and secured reading grades in these three tests of 2.2, 2.4, and 2.1, respectively. What was more important, he had developed essentially sound reading habits.

Cases of this sort are usually difficult to treat, and less improvement than that shown above is common. The widespread weakness is a retarding influence difficult to outmaneuver. Sometimes the most baffling factor is the lack of zest and will to improve. Slumps into indifference after a hopeful spurt have to be constantly guarded against. Some of these children seem to suffer from a mediocrity complex; they may be habituated to giving up, relapsing, doing nothing creditably. For such pupils the problem of motivation is paramount.

Case 4. Ninth-Grade Pupil Whose Reading Was Slow and Labored

Case History. Case 4 is a girl who was failing in her school-work. Difficulties in reading were suspected. Case 4 was a conscientious pupil, pretty, charming, and cooperative. She seemed to under-

stand well but although she worked very hard she was unable to meet the demands of the first year in high school. Her work previously had been passable. This case is offered as an illustration of the use of the *Gates Diagnostic Tests* with pupils of the upper grades who are markedly retarded.

Diagnosis. Most of the diagnostic tests were given to Case 4, although the scores on many of them could have been foreseen. The case was chosen for presentation here because so many tests were given. The grade scores and ratings are given in the list below.

	Grade Score	Rating
Age	9.7	
Grade	9.5	
Stanford-Binet I.Q. 106	10.5	
Gates Survey, Speed	3.5	V.L.
Accuracy 100%		V.H.
Level of Comprehension	8.6	L.
Gates Oral Reading	8.0	L.
Reversal test	P.S.	M.
Phrase Perception	3.7	V.L.
Word Perception (Flash)	4.4	V.L.
Word Perception (Untimed)	P.S.	M.
Spelling	9.2	M. —
Syllabication	P.S.	M.
Recognition of phonograms	P.S.	M.
Recognition of syllables	P.S.	M.
Blending letter sounds	P.S.	M.
Giving letter sounds	P.S.	M.
Reading small letters (time)	P.S.	M.
Errors	P.S.	M.
Blending letter sounds	P.S.	M.
Giving letters for sound	P.S.	M.

Case 4's age was about average for her grade, which was 9.5. Her I.Q. was 106, slightly above average, and her M.A. corresponds to Grade 10.5. In the Speed test of the *Gates Reading Survey* she got a grade score of 3.5, which is six grades below her actual grade

Case 4. Ninth-Grade Pupil Whose Reading Was Slow and Labored

status. She read with high accuracy and on the Level of Comprehension Test, in which she had plenty of time, her grade score was 8.6 or only one year below her grade status. She was clearly a very slow reader and consequently required an excessive amount of time to read her assignments. Her comprehension may have been affected somewhat unfavorably by her slow pace. Her grade score on the *Gates Oral Reading Test* was 8.0. This test, it will be recalled, is scored in terms of errors and not speed. Analysis of the few errors she made showed a typical pattern. The Reversals Test showed no difficulty.

Case 4's limitation shows up clearly in the tests of quick recognition of phrases and words. In the Phrase Perception Test her grade score was only 3.7, approximately the same as her grade score in speed of reading, and in the Word Perception (Flash Presentation) Test her score was slightly better—4.4. Case 4 is a good illustration of the pupil who has habituated silent reading at the speed of talking. Tests showed that 160 words per minute was a typical silent reading speed. She rarely exceeded 170 words per minute. Her eyes stopped for observation of almost every word. She had not learned to read by thought units and the duration of her pause on single words was relatively long.

Note that the scores on the other diagnostic tests were M scores. She could work out the recognition and pronunciation of words very well when given time. She was a good speller and she could employ syllabication, letter blending, and other devices quite well.

An examination of vision showed superior vision and her hearing was good. Her health had always been good. No constitutional factors could be found to account for Case 4's slowness in reading. Her motor reactions were better than average, and she did not seem to be a slow girl in anything but reading.

Treatment. Case 4 was given a type of program similar in general to the one outlined in Chap. 14 for the slow reader. The *Gates-Pearson Practice Exercises*, Books 5 and 6, were used, and rapid reading of various easy books likely to appeal to her interests was encouraged. Special attention was given to the matter of inner speech; Case 4 sometimes moved her lips while reading silently.

After three and a half months of training, speed tests were given. On the Speed Test of the *Gates Reading Survey*, Case 4 got a grade score of 7.4; the average grade score from three of the *Gates Basic Reading Tests* was 7.6 and she could read typical adult fiction with good understanding at 300 words per minute. Further gains may be realized later. The girl reported that she could do her school lessons in much less time than previously, and the teachers reported a marked improvement in the quality of her work.

Case 5. Auditory Deficiencies

Case History. Case 5 was struggling rather hopelessly in the second grade at the time he was examined. His age was 8.5 and his Stanford-Binet Mental Age 8.9. He came from a good family. His father was the proprietor of a small radio shop.

Diagnosis. In silent reading ability, Case 5 had an average grade score of 1.5. He read slowly and laboriously. When he encountered difficult words, he studied the individual letters and tried to sound them as he had been taught to do in a school that utilized formal phonetic instruction to develop independence in word recognition. Oral reading and a precise method of letter-sound translation were extensively employed. Case 5 showed less-than-average reversal tendencies. He could name the letters of the alphabet, but had difficulty giving letter sounds and blending. He was unable to recognize syllables and phonograms. He was likewise below the norms in the tests of giving words with a stated initial or final sound. Tested with the 2A Audiometer, it was found that he was hard of hearing.¹

Treatment. The pupil's trouble was partly due to inability really to participate in much of the oral instruction and partly to inaptitude for the phonetic approach. A student remedial teacher undertook to introduce another approach in which visual, rather than auditory, word characteristics would prevail. She began by teaching the pupil to recognize a few words and to compare them

¹In *Auditory and Speech Characteristics of Poor Readers*, by Guy L. Bond, a number of cases of this type are described in detail Teachers College Contributions to Education No. 657, 1935, Bureau of Publications, Teachers College.

Cases 6, 7, 8. Three Poorest Readers in a Third-Grade

with each other. The words were then used in various sentences and full comprehension insisted upon. Similar words were compared and the differences observed. Projects in developing a dictionary and in making booklets and word lists were undertaken. A first reader was introduced, and comprehension exercises were made up. Type-written sheets of additional context were prepared. Words and phrases, written on slips or cards, were used by the pupil to construct new sentences. Words containing similar parts were constantly compared. Instruction in searching a word from left to right for "old friends" among the syllables or other parts was given. The pupil was taught to write in manuscript. A method of spelling which emphasized visual study, syllabication, and writing was introduced fairly early. Occasional flash-card exercises were used to emphasize recognition on the basis of general configuration.

After about a month of twenty- to thirty-minute periods a day the pupil began to demonstrate real ability to learn new words readily. He used the general shape and the larger visual elements. He began to develop ability to recognize syllables and larger phonograms and to make use of them. He learned to make the most of context clues. He was followed up during three more weeks, at the end of which he seemed capable of handling himself very well in second-grade materials. His interest in reading became keen, as a consequence perhaps of several factors: satisfaction in overcoming an old difficulty, compensation for social difficulties due to his hearing, and a real zest for the content of books provided for him. Six months later, Case 5 had a reading accomplishment quotient of 104—that is, he could read 4 per cent better than the average pupil of the same mental age.

Cases 6, 7, 8. Three Poorest Readers in a Third-Grade Despite a Year of Tutoring in a Formal Remedial Program

Case Histories. Cases 6, 7, and 8 are in Grade 3.6. The three girls were repeating the third grade and were the poorest readers in a class of twenty children. They were reported by the home-room teacher for group remedial work in the hope that their reading skills

could be improved during the spring of the school year. All three children came from homes of good economic and social status.

Case 6 was one of two children in the family. Her older brother has an I.Q. of 140 and has had an excellent record all through school. Case 6 was an attractive girl but rather tense and insecure. She was an impulsive youngster with poor work habits. There had been great friction at home and unfavorable comparisons were often made between her and her older brother. She enjoyed good health. Her vision and hearing were normal.

Case 7 was one of the oldest children in her grade. She was an only child in the family. She was a restless youngster who was good-natured and friendly but who has poor work habits and found it hard to settle down. She was more interested in sports than in schoolwork; she was a leader in athletics but was labeled in the classroom by her friends as a poor student. The school record indicated that she missed a great deal of school during her first year, due to colds and minor illnesses.

Case 8 was one of the smallest children in the class and one of the most immature. She was a cooperative child, however, and followed along with the others. She had attended many different schools because the family had moved around a good deal. She was an only child. Her record indicated that her general health, vision, and hearing were satisfactory. The only strong interest in anything she had shown was her love for singing and dancing.

Diagnoses. Test results are recorded below:

<i>Name of Child</i>	<i>Age</i>	<i>I.Q.</i>	<i>Mental Grade</i>	<i>Average on 3 "Gates Advanced Primary Reading Tests"</i>	
Case 6	9-6	107	4.4	2.8	
Case 7	9-8	100	4.0	2.8	
Case 8	9-0	95	3.0	2.5	
<i>Gates Oral Reading</i>	<i>% Reversals on Oral Test</i>	<i>Syllabication</i>		<i>Recognition of Syllables</i>	<i>Recognition of Phonograms</i>
2.5	M	3.1		3.1	3.0
2.9	M	2.9		2.4	2.9
3.0	M	2.9		2.8	2.9

Cases 6, 7, 8. Three Poorest Readers in a Third-Grade

<i>Blending Letter Sounds</i>	<i>Sounding Letters</i>	<i>Reading Small Letters (errors)</i>	<i>Blending Letter Sounds</i>	<i>Giving Letter Sounds</i>
3.5	3.2	P.S.	3.8	3.4
3.4	3.6	P.S.	P.S.	P.S. ¹
3.0	2.8	2.7	2.8	2.9

The average I.Q. in the class is 115. This indicates that the three children were considerably below the class average in their general ability. Cases 6 and 7 surpassed the average child in mental grade but fell below the average in this private-school class. Case 8 was still lower; her mental grade was only 3.0. All three children had some group remedial work the year before. This work consisted mainly of phonetic drills. It affords a good illustration of the wastefulness of remedial work carried on by mere application of a formula or gadget without real insight into the needs of the cases.

Cases 6 and 7 are remarkably similar in silent reading. Although Case 7 is a little better in oral reading, these two girls show a similar picture in the other diagnostic tests. They are close to the beginning third-grade level in the Visual Perception Techniques Tests and get high or perfect scores in the auditory techniques. Case 7's relatively low score in Recognition of Syllables should not be taken too seriously, since she does better in the Recognition of Phonograms Test. Both girls fall a grade or more below their mental grades in the various tests of reading techniques and their retardation is general rather than highly specialized. Case 8's picture is similar except that she is less retarded in comparison with her mental grade, 3.0, which she equals in oral reading, falls below by 0.5 grade in silent reading, but approximates closely in the tests of reading techniques.

As stated above, these three girls had been tutored during the whole preceding year by a procedure centered in a formal phonetic training. It will be noted that the highest grade scores for Cases 6 and 7 were those in blending letters, giving letter sounds, reading letters, but that they were still very poor readers.

Treatment. The three children were tutored for a half hour three times a week for the remainder of the school year. An attempt

¹ P.S. means Perfect Score.

was made to make the program flexible enough to enable each child to get some individual attention and also to enable them to work together as a group.

Second-grade basal readers from two well-known series were introduced to the group. Sometimes they took turns reading parts of the stories aloud. The children each read stories silently and group discussion followed. The children were asked to make lists of words which they did not know and some drill was given individually with each child on this work. They were assigned some work in reading workbooks and part of each period was taken to correct and discuss these pages. A variety of exercises and games was introduced for reviewing the words which seemed to be causing the most difficulty. The children were also asked to write stories and to read them to each other. This project was enjoyed by the three children and they seemed quite pleased with their opportunity to express themselves freely before the others. Emphasis was placed on reading in thought units in an effort to get the children away from the word-by-word approach. Other supplementary reading material was introduced to meet the children's special interests. After the second-grade materials were completed, third-grade books in the same series were introduced into the remedial program. Picture dictionaries were also made by the children and were illustrated with sentences and pictures. Special help was given on word-study techniques for all the children were still weak in their methods of attacking new words and disposed to resort to letter-sounding exclusively when in difficulty.

The children seemed to enjoy the remedial work and seldom missed a lesson. They got along well together and called themselves "The Reading Club." They accepted each other's errors and offered help to one another when they could. This work continued for three months. In addition to the group remedial work, there were interviews with the individual parents to explain the remedial program and to learn more about attitudes and policies in the homes. In each case the worker felt a better understanding had been gained and each parent did his best to cooperate with the program.

Case 9. Inappropriate and Unsystematic Directional Orientation

Results. Both the parents and the children relaxed as the term went on. Aside from the gain in test results the worker felt that the children had improved their interest in reading and seemed to enjoy it for the first time. Their work habits also improved. Results of tests repeated at the end of the program are given below:

<i>Name of Child</i>	<i>Average on "Gates Advanced Primary Reading Tests"</i>	<i>Gates Oral</i>
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Case 6	3.8	3.7
Case 7	3.6	3.6
Case 8	3.0	3.6

<i>Recognition of Syllables</i>	<i>Recognition of Phonograms</i>
---------------------------------	----------------------------------

3.8	3.7
3.0	3.5
3.4	3.5

The results indicated that gains were made in each of the areas which were rechecked. There is need for further work with the children for in some areas they are still somewhat below their actual grade placement, which was 3.8 at the time of the test. However, each child was working more independently and was consciously attempting to improve her skills. The classroom teacher noted a great change in attitude and felt that these children were more a part of the regular group than ever before.

Case 9. Inappropriate and Unsystematic Directional Orientation

Case History. Case 9 was a boy 8 years and 2 months of age at the time of the examination. His father was a truckman. He had attended a public school and was nearing the end of his second year. He had repeated the second half of the first-grade work. He was, practically speaking, a failure in reading and he was under consideration as a candidate for the special class. Case 9 was reported as emotionally normal, though rather sensitive and excitable, when he first entered school, but he became progressively inattentive, irri-

table, sullen, and mischievous as his school difficulties increased. He was the youngest of a small group of boys who were suspected of stealing, injuring property, and annoying other children. His health was sturdy and no physical disabilities were reported.

Diagnosis. Case 9 made zero or near zero scores in the Gates Primary Sentence Reading and the Paragraph Reading Tests. He recognized four words to earn a grade score of 1.35 in the Word Recognition Test. He made out a few words in the Word Perception (Untimed) Test (grade score about 1.5), but he obtained zero score in the *Gates Oral Reading Test*. Observation of the pupil's work on unfamiliar words in these tests revealed the fact that he employed a most unsystematic attack. He studied the word as he would have observed any curious small object. He looked it over back and forth from beginning to middle, then back again; from middle to beginning to end; from middle to end to beginning. Observation of the pupil's eyes revealed from five to twenty fixations per word in all sorts of orders. When asked to study a word in one direction, Case 9 found it difficult to do so, and in cases in which he was successful, he would usually fail to use the same direction, consistently, a day or two later when asked to recognize the word. This probably explains the fact mentioned by the teachers, that the boy never seemed to retain what he learned. He might learn to recognize a word one day and be utterly unfamiliar with it the next day. He perhaps learned by using one sequence of reactions, but would be unable to recognize the word later when the order of observing the parts was changed.

On the *Gates Oral Reading Test*, Case 9's errors were mainly utter failures. Induced to guess, he gave results which were mainly far-fetched, though many were probably due to prepotency of one or two parts of the words. Out of twenty errors recorded, eight were classified as reversals or reversals of parts; three others had a wrong beginning; three wrong endings; and six were wrong in several parts. The scores for wrong middles and wrong endings were fewer than average, for the reason that they refer to words that are correct in all parts *except* that designated. Case 9 was usually wrong in more than merely one part. The test for isolated word reversals

Case 9. Inappropriate and Unsystematic Directional Orientation

was so difficult for Case 9 as to give unreliable results. His guesses showed a mix-up in the order of approximately 40 per cent of the cases.

Of course, Case 9 could do nothing with the tests of phonetic abilities. He knew only about half the capital letters and only six of the lower-case letters. He could blend letter sounds fairly well and had no defects of auditory or visual discrimination. He could spell none of the words in the Spelling Test, and could write only five letters. His scores in associative learning were about average for his mental age, which, since his I.Q. was 92, was only 7.5 years, or Grade 2.1.

Case 9 was given an eye examination, which showed astigmatism too slight, in the physician's opinion, to be of significance. He was predominantly right-handed and, as far as was known, had never attempted to write with the left hand. He was right-eyed in the tests of visual dominance.

Treatment. Case 9 was first given careful instruction in progressing across a word and line in the left-to-right direction. Large words printed in manuscript on the blackboard were first used and then words in a book. Pointers were used to demonstrate the direction, and the pupil was allowed to use his finger. Other devices were employed until the boy began to get the right idea. Approximately two weeks of careful instruction, demonstration, and supervised practice resulted in marked improvement. At that point, instruction in detecting the important visual clues and in noting and pronouncing component syllables was introduced. The pupil was then taught the letter sounds and the names of the letters. He was taught to write and to study spelling by a syllabic method.

Progress during the first five weeks was slow but real, although marked by occasional lapses. From this point on, the pupil seemed really to have attained fair command of the essentials. An informal test made two months after the beginning of the remedial work showed that Case 9 could read representative first-grade (second half year) material fairly well. The reversal tendency was largely gone and he had developed considerable ability to attack unfamiliar words.

Case 10. Reversal Tendencies Associated with Dominance of Left Hand and Left Eye

Case History. Case 10 was a girl, approximately eight years old at the time of the test, who had entered school a month before her sixth birthday. Prior to this time she had shown a tendency to use her left hand in most activities, including scribbling and drawing. The parents had tried to make her handle pencils, crayons, and other objects with her right hand. Some of her first writing efforts resulted in mirror writing. On entering school, she was advised to use her right hand, with which she could then draw or scribble about as well as with the left. She was alleged to be a nervous and flighty girl, given to abstraction and day-dreaming and to occasional violent outbreaks of anger and weeping. She made little headway in either reading or writing in a largely "look and say" program. She also had trouble in arithmetic and spelling. An examination conducted in the school gave her an I.Q. of 95. Her difficulty in learning, her mirror writing, and the fairly frequent reversal errors led the teacher to suspect that there was something wrong with Case 10 that called for special consideration.

Diagnosis. Case 10 obtained a reading grade of 1.4 in Word Recognition, 1.3 in Sentence Reading, and 1.3 in Paragraph Reading. The *Gates Oral Reading Test* proved too difficult to permit use of the objective analysis. Observation of the girl's eye movements and a related study of her errors indicated, however, that she viewed words in a manner similar to that employed by Case 9 except that she was more systematic and disposed to employ a smaller variety of directional patterns. Her most common method was to look a word over from left to right and then in reverse order. Often she looked back and forth in this way several times. In some cases, however, she began with the right-to-left order and then went back and forth. Sometimes the sweep in one direction would be repeated one or more times. On other occasions the word was studied in various ways, beginning at any point in the manner characteristic of Case 9. The most common attack, however, was back and forth, beginning with the left-to-right direction.

Case 10. Reversal Tendencies Associated with Left Hand and Left Eye

In the *Reversals Test* and in other tests, Case 9 showed a much greater tendency to make reversal errors than does the average pupil of similar general reading ability. The response was often an incorrect word, but one which resembled the word as viewed in the direction just taken. Thus, *no* for *not*, *at* for *as*, *ma* for *man*, *was* for *war*, suggest left-to-right surveys whereas *no* for *ton*, *man* for *am*, *not* for *won* suggest the opposite approach. Approximately 36 per cent of the responses suggest right-to-left procedure, whereas 56 suggest left to right and 8 mixed or uncertain. For the typical beginning child the percentage of reversals would be about 22.

Case 10 lacked familiarity with phonetic elements and the letter sounds, and knew only eleven of the lower-case letters. She was a little below the M score in the tests of the *Auditory Perception Techniques*, but showed no weakness in hearing. Tests of dominance confirmed the early belief that the left hand was superior in performance and a left-eye dominance was shown by the Manoptoscope and by aiming tests.

This case is one which tempts the examiner to render a diagnosis of "reversal tendencies due to left-handedness and left-eyedness," or "confused orientation due to changing over from left- to right-hand practice in writing," or both. But for reasons given in earlier chapters, such a final diagnosis concerning *causes* would be hasty and possibly entirely incorrect. Case 9 revealed almost equally clear symptoms of left-dominance and of confusion conceivably due to changing over from one hand to the other, yet the basis of neither explanation was there. Similar symptoms may come from different causes. However, the hand and eye dominance in this case and circumstances attending the change from left- to right-hand writing are possible causal factors, and certainly facts to be considered in remedial treatment.

Treatment. Since the pupil had unhappy associations with handwriting, it was decided to drop this altogether for a time and later to make a fresh start using the left hand after proper eye movements in reading had been established. After determining the words with which the pupil was familiar, the teacher began to instruct her in recognizing them in paragraphs and sentences made

up and typed on paper and cards. Much guidance was given in maintaining correct orientation along the line and across individual words. Close observation was required of words incorrectly recognized and they were compared with others as the left-to-right direction of study was emphasized. Gradually new words were introduced and compared with older ones. The pupil developed a word-picture dictionary of her own and mastered the alphabet in doing so. The pupil was first given guidance in seeing and utilizing syllables and phonograms and later in sounding the letters. At all times, the pupil was provided with as much simple material for silent and oral reading as could be found or made. Care was taken not to present many new words at a time until the basal techniques were fairly well established. After two months of instruction, the pupil earned a reading grade of about 2.0 in several tests and was making rapid progress with a program of second-grade reading material.

Case 11. Poor Reading Resulting Largely from Parental Anxiety and Family Conflicts

Case History. Case 11 was an eight-year-and-one-month-old girl at the time she was referred for study. She was referred because of poor schoolwork which the family believed was due to poor reading techniques. Case 11 came from an American family of better-than-average financial status. Her actual grade status at the time of referral was 2.7. She was repeating the second grade.

An interview with the mother revealed that Case 11 had difficulty with reading from the beginning. The mother reported that she was very immature when she entered first grade. She was quite a restless child and was apparently not ready to settle down to any formal schoolwork. She had always been in a class of about thirty-five pupils and had received little individual attention from her teachers. The mother stated that Case 11 made many reversal errors from the beginning, and that at one time one teacher called her a "mirror reader." The parents were very concerned during the first year of school and asked to have Case 11 repeat the first grade, but the teacher felt that this was unnecessary. In the second grade

Case 11. Poor Reading Resulting from Parental Anxiety

she still made very slow progress and the mother became quite concerned. She began to help her at home, but this led to many tense moments. The child was quite sensitive about the problem, and friction constantly grew between the parent and daughter. At the end of second grade, the family decided to change schools in the hope that a new atmosphere would be good for her. A small private school was chosen where she could receive individual help.

Two Binet tests were administered to Case 11 at the public school and she earned I.Q.'s of 126 and 129, respectively, on the two forms of the Binet, giving her a mental age of about 10.3. The girl's school difficulties were not due to lack of intelligence for the test results suggested that she was a very bright girl of well-rounded mental ability.

Case 11 has one sister, five years of age. Interviews with the mother revealed there was a good relationship between the children. Case 11's health record was good and her school attendance excellent. An oculist found no defect in her vision. Her hearing was also good. Case 11 was dominantly right-handed and there was never any question about mixed hand dominance.

Diagnosis. On the *Gates Primary Tests*, Case 11 earned the following scores:

<i>Test</i>	<i>Grade Score</i>
Word Recognition	2.2
Sentence Reading	1.7
Paragraph Reading	1.5
<i>Average Silent Reading</i>	<u>1.8</u>

The results of these tests suggested that Case 11 was considerably better in word recognition than in reading. The average of the silent tests is a grade score of 1.8 which is very low for a pupil in grade 2.7 and very, very low for one whose mental ability corresponds to grade 4.5. On the *Gates Oral Reading Test* Case 11 earned a score of 2.1, somewhat higher than her grade score in silent reading.

Other grade scores on the diagnostic tests are listed below. The ratings for silent and oral reading are based on actual grade position

whereas the ratings for the other tests use an average of the silent and oral reading grade score, approximately 1.9, as a base. All are M scores except Syllabication, which is L, and Percentage of Reversals and Recognition of Phonograms, which are M—. M scores, thus determined, mean that this pupil is backward in all the specialized reading techniques measured to about the same extent that she is backward in silent and oral reading, except in orientation in observing words (as shown by the *Reversals Test*) and in Syllabication and Recognition of Phonograms.

	Grade Scores	Rating
Actual grade status	2.7	
Age grade status	2.6	
Mental grade status	4.5	
Gates oral vocabulary	4.2	
Average silent reading grade	1.8	V.L.+
Gates oral reading	2.1	L
Reversals (errors)	1.7	M
Percentage of reversals	1.5	M—
Phrase perception	1.9	M
Word perception (flash)	1.9	M
Syllabication	No success	L
Recognition of syllables	2.0	M
Recognition of phonograms	1.6	M—
Blending letter sounds	2.1	M+
Giving letter sounds	2.2	M+
Reading capital letters		
Speed	1.6	M
Errors	1.7	M
Reading small letters		
Speed	1.8	M
Errors	1.8	M
Spelling	1.4	L
Auditory techniques		
Blending letter sounds	P.S.	H
Giving letters for sounds	P.S.	H
Giving words with stated initial sounds	P.S.	H
Giving words with stated final sound	P.S.	H

Case 11. Poor Reading Resulting from Parental Anxiety

Observation revealed that Case 11 had a tendency to point to words as she read them. She read in a slow, word-by-word manner. She made some use of context clues, but not enough to be of very great help. In general, she had almost no approach to new words and either guessed at random or gave up quickly.

Case 11 made many reversal errors. In the test where she was asked to give the sounds for individual letters she missed the following: *e, x, z, q*, and *g*. In another test where the girl was merely asked to name the letters she missed the following: *R, G, C, Q, x, v, z, q*. She had great difficulty blending letter sounds. She could do this only to a slight extent and all her attempts were slow and labored. She had difficulty in reading the common syllables and phonograms and got a zero score on the Syllabication Test. She seemed to have particular difficulty with vowel sounds. In the tests of auditory techniques, however, she obtained perfect scores, indicating that the difficulty was not in hearing or auditory perception but, rather, in the techniques of responding to printed materials—words, syllables, phonograms, letters.

Case 11's spelling skills were also very poor. On the Spelling Test she did only as well as the average child in grade 1.7. Her responses indicated no systematic attack. She could not give the letters with the correct sounds and seemed at a loss to know where to begin.

Observation of Case 11 during the testing program revealed she was very lacking in self-confidence and had a fear of failure. She was always afraid to try for she was convinced she would be wrong. She was also convinced that no one else had confidence in her.

Treatment. It was felt that an important part of the treatment for Case 11 was a better attitude on the part of the parents. It was felt that neither parent should tutor her, for each session resulted in a conflict and emotional upheaval. The parents had been apprehensive about the child ever since she entered school, and the tension in the home combined with her restlessness and immaturity at the time of admission to first grade was probably a major factor in causing her difficulty in reading. The examiner attempted to interpret this situation to the parents and to reassure them about the

child's good native ability. A tutor was secured in whom the parents had confidence and whom the girl liked, and the parents soon began to relax and for the first time felt that something helpful was being done for their child.

The tutor worked with Case 11 about a half hour four times a week. It was suggested that the beginning program be a very informal one with plenty of opportunity for easy reading. The remedial program was started with some primers. The girl responded well to these easy materials and seemed to have a feeling of pride in her accomplishment. The tutor introduced experiences designed to improve her word-study and word-analysis skills. Some use was also made of a picture dictionary. With the help of the tutor Case 11 also made a dictionary of her own in which she wrote sentences and stories about words and illustrated them with pictures. Some games were played with word cards in an effort to build up a larger sight vocabulary, but a comparatively small amount of time was spent on this work. No attempt was made to increase speed of reading at this time but rather emphasis was placed on systematic word attack, left-to-right orientation, and full understanding of the thought. The child was tutored for the remainder of the school year with occasional periods over the summer. In the fall the work was resumed three times a week. The girl became much more confident and seemed to enjoy reading for the first time. There were lapses from time to time when interest declined, but it was always possible to recapture her interest.

Results. Case 11 was again referred to the examiner eleven months after the original testing period. At this time the *Gates Advanced Primary Reading Tests* were administered and the girl earned the following scores:

Word Recognition	2.8
Paragraph Reading	<u>2.3</u>
<i>Average Silent Reading</i>	2.55

The scores suggest that Case 11 has gained considerably in paragraph reading. On the *Gates Oral Reading Test* Case 11 earned a score of 3.4 which indicated a little more than a year's progress. The

Case 11. Poor Reading Resulting from Parental Anxiety

record of the girl's scores on the other diagnostic tests is listed below:

<i>Oral Reading</i>	
Reversals	
Errors	2.9
Percentage of Reversals	2.6
Phrase perception	2.7
Word perception (Flash)	2.3
<i>Visual Perception Techniques</i>	
Syllabication	3.5
Recognition of syllables	3.4
Recognition of phonograms	3.8
Blending letter sounds	3.1
Giving letter sounds	P.S.
Reading capital letters	
Speed	2.0
Errors	P.S.
Reading small letters	
Speed	2.0
Errors (1)	2.5
<i>Spelling</i>	2.9

A review of Case 11's scores indicates that she was making fewer reversal errors and that she had gained considerably in visual perception techniques. Her approach to reading was significantly better. She showed a much greater understanding of word analysis, and showed a definite systematic attack on words. She read with more expression and made better use of context clues. She knew all the sounds for the individual letters and was sure of herself in this area, a year previously she had great difficulty in blending letter sounds and stumbled over most of the syllables and phonograms. She had made good progress in this area and was now able to use these techniques almost as well as the average child in her present grade (3.6). She needed to make further improvement, however, in her word-perception techniques.

Case 11's spelling ability increased a full grade. Her approach in spelling words was much more systematic and an attempt was now

made to spell words in syllables rather than in a letter-by-letter fashion.

The girl's attitude was considerably better. She was much more self-confident and seemed to enjoy the tests. She was anxious to show the worker how much progress was made and was very receptive when praise and encouragement were offered. She showed insight into her errors and seemed to indicate real interest in improving her reading and spelling techniques.

Case 11 had made a fine start in securing the basic fundamentals in reading and spelling. Her attitude toward the work and her interest in improving her skills were so good as to justify the belief that progress might be faster from this point on. It was suggested that the tutoring be continued. It was felt it was important to go slowly but surely in order to avoid the effects of an upset on the child or her parents. The importance of praise and encouragement for this child was emphasized. It was also noted that she was beginning to do independent reading. The eventual aim, of course, is to help this girl to develop skills equal to her fine native ability.

Case 12. Reading Difficulties Resulting from Parental Interference

Case History. Case 12, a boy, was six years and eleven months when he was referred for study. He attended a public school in a suburban area and was in grade 2.3. He had had three years of preschool experience and entered first grade at the age of five and a half. Throughout the first grade the teacher felt he accomplished very little and was generally immature. He missed no school at all because of poor health. It was observed, however, that he was a daydreamer and often did not concentrate on the work presented.

Both parents were school teachers and were confused as well as embarrassed over their son's inability to make normal school progress. The parents experienced strong feelings of guilt and disappointment and the boy sensed the latter. Both parents had attempted to tutor the child at home but each session ended in tension.

Case 12. Reading Difficulties Resulting from Parental Interference

Diagnosis. Form M of the Binet gave an I.Q. of 110 (C.A. 6.11; M.A. 7.7) which classified the boy as a child of high average intelligence. His mental grade was 2.3, identical with his actual grade position. His oral vocabulary, memory, comprehension, and reasoning ability all compared favorably with others of his age.

The three *Gates Primary Reading Tests* gave an average reading grade of 1.6. On the *Gates Oral Reading Test* he earned a grade score of 2.1. The results of other *Gates Diagnostic Tests* are listed below:

<i>Diagnostic Tests</i>	<i>Grade Scores</i>	<i>Rating</i>
Average silent reading grade	1.6	
Reversal test—total errors	1.5	M
Percentage Reversals	1.6	M
Phrase perception	1.6	M
Word perception (flash presentation)	1.8	M+
Word perception (untimed)	1.9	M+
Spelling	2.1	M+
Syllabication	2.1	M+
Recognition of syllables	No success	M—
Recognition of phonograms	No success	M—
Blending letter sounds	No success	M—
Giving letter sounds	1.7	M
Reading capital letters		
Speed	1.9	M+
Errors	2.2	M+
Reading small letters		
Speed	1.6	M
Errors	1.7	M

The results of the diagnostic tests indicated that Case 12 had come to grips with only a few reading techniques. All his scores on the detailed reading techniques are M+, M, or M— when compared to his grade scores on silent reading, but this merely means they are all about equally poor. Compared to his actual grade or mental grade, most of these scores are low, with the exception of spelling, syllabication, and reading capital letters. Observation revealed that Case 12 read in a word-by-word manner without much understanding. He pointed to words as he read them and also moved his

lips as he read silently. He had little ability to deal with unfamiliar words. He could not sound out words or blend them. He was unfamiliar with the common syllables and phonograms. In the test of ability to give sounds for individual letters, he did not know the following: *f, d, z, r, m, l, q, u, w, b, n*, and *v*. He was unable to name the following letters: *Z, d, b, n, z, q*, and *l*.

Case 12's response on the spelling test revealed his work to be a little better than his general reading skills, but he also needed help in this area. His approach to difficult words was poor. He tended to spell awkwardly, letter by letter, with no syllabic divisions. Observation revealed Case 12 to be dominantly right-handed. His vision was normal. His hearing and general health were good. He expressed himself very well in long sentences and could convey his ideas effectively.

Case 12 was a cooperative, friendly youngster. He was spontaneous and put forth good effort and attention during the testing program. He was inclined to be quite restless, however, and lacking in self-confidence, but always responded well to praise and encouragement.

Treatment. It was felt that Case 12 would profit from individual attention in reading from someone outside his home. It was recommended that this child have three one-half hour lessons a week during the school day. A primer was chosen for him in which he showed great interest. Later a first reader and the accompanying workbook were used. He was given help in sounding out words, and games with rhymes were presented. Word-form characteristics were stressed and some use was also made of the word-study games. The boy was constantly encouraged to make greater use of context clues. Speed of reading was not emphasized. Case 12 had a good deal of interest in cutting, pasting, and coloring and this was capitalized in the remedial program. When Case 12 had thoroughly mastered the easier materials, second-grade readers were introduced.

Results. Case 12 responded splendidly to the tutoring program from the beginning. He had confidence in the tutor and was soon able to read simple stories. He talked quite frankly about how hard some things were for him and how he was beginning to

Case 13. Good Intellect, Poor Reading Techniques

recognize words. Retests four months later indicated that the child's work habits and self-confidence were substantially improved. The parents had relaxed considerably in the meantime, with constant reassurance given to them, and ceased to put pressure on the boy. At the time of the retests Case 12 was in Grade 2.7 and on the *Gates Primary Reading Tests* he earned an average grade score of 2.5, which indicated almost a year's progress in silent reading. His oral reading went up to Grade 2.8. His reading was still slow, with a bit too much emphasis on words rather than the thought. The pointing and moving of the lips no longer existed. Case 12's reading at the time of the retest showed an average reading grade equal to his mental grade.

Case 13. Good Intellect, Poor Reading Techniques; Sibling Rivalry a Causal Factor

Case History. Case 13 was a girl referred for study by her mother who was concerned over the child's poor school progress. She was ten years and two months old and in Grade 4.5. The mother reported that Case 13 had changed schools several times due to the fact that the father was in war service and the family kept following him around the country. This child had missed many days of school each time the family moved.

The mother said that Case 13 had a sister of twelve who, in spite of the same difficulty of moving from school to school, had a good school record. The conference with the mother further revealed that the older daughter was the preferred member of the family. The mother assumed that Case 13 was not very bright and she therefore did not have a right to expect very much of her. The mother admitted that she was greatly shocked when her second child turned out to be a girl. She said it had never occurred to her that she would not have a son and she admitted that she and her husband were extremely disappointed in the sex of the baby. She frankly said she had always teased Case 13 about the fact that she should have been a boy. The child, in fact, heard repeatedly about how the family had wanted a boy when she was born. There was

lips as he read silently. He had little ability to deal with unfamiliar words. He could not sound out words or blend them. He was unfamiliar with the common syllables and phonograms. In the test of ability to give sounds for individual letters, he did not know the following: *f, d, z, r, m, l, q, u, w, b, n*, and *v*. He was unable to name the following letters: *Z, d, b, n, z, q*, and *l*.

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Treatment. It was felt that Case 12 would profit from individual attention in reading from someone outside his home. It was recommended that this child have three one-half hour lessons a week during the school day. A primer was chosen for him in which he showed great interest. Later a first reader and the accompanying workbook were used. He was given help in sounding out words, and games with rhymes were presented. Word-form characteristics were stressed and some use was also made of the word-study games. The boy was constantly encouraged to make greater use of context clues. Speed of reading was not emphasized. Case 12 had a good deal of interest in cutting, pasting, and coloring and this was capitalized in the remedial program. When Case 12 had thoroughly mastered the easier materials, second-grade readers were introduced.

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great friction between the two children. The older child obviously resented any attention her sister received, and Case 13 obviously resented the constant unfavorable comparisons of herself with the older girl, and all the praise and privileges that her sister constantly received.

Case 13 had a defeatist attitude toward her schoolwork. She assumed that she knew nothing and could not learn very much. She was very pessimistic about her own possibilities as a person and as a student.

Both parents were professional people. They were intelligent and understanding when the difficulties were discussed. Both, however, were tense and had strong feelings of guilt over Case 13's failures.

Diagnosis. Form L of the Binet test indicated an I.Q. of 122 (C.A. 10.2; M.A. 12.5; mental grade 6.7), which classified Case 13 as a very bright girl. Her responses on the Binet indicated good verbal ability, a fine vocabulary, good memory, comprehension, and reasoning ability. The girl's academic difficulties certainly were not based on lack of native intelligence.

The *Gates Primary Reading Tests* gave the following grade scores:

Word Recognition	2.5
Sentence Reading	2.9
Paragraph Reading	<u>3.0</u>
Average	2.8

Her average silent-reading ability was equivalent to the average pupil in Grade 2.8 whereas her mental ability equalled that of the average child above the middle of the sixth grade.

The *Gates Oral Reading Test* gave a grade score of 2.9, approximately the same as the average silent-reading grade score.

The girl's grade scores on other oral diagnostic tests are recorded on page 569. The ratings are based on 2.8, the average of the silent-reading grade scores.

Note first that Case 13 was weak, *for one of her mental grade (6.7) in all the basic fundamentals of reading.* She had an immature approach to difficult words. When she encountered an unfamiliar word she tended to spell out the letters. She placed so much empha-

Case 13. Good Intellect, Poor Reading Techniques

<i>Diagnostic Tests</i>	<i>Grade Scores</i>	<i>Rating</i>
Reversals—total errors	3.3	M+
Percentage of reversals	1.5	V.L.
Syllabication	3.0	M+
Recognition of syllables	3.3	M+
Recognition of phonograms	3.6	H
Blending letter sounds	2.5	M—
Giving letter sounds	3.2	M+
Spelling	3.4	M+

sis on the individual word that she often lost the thought of the material. For the most part she read in a word-by-word manner. It was noted that she often withdrew effort completely because of general confusion and lack of confidence. She was often guilty of childish reversal errors and of other errors of orientation. She was very limited in her ability to blend parts of words and showed little familiarity with the common syllables and phonograms. She often confused the sounds of *m* with *n* and had difficulty sounding the letter *y*. She also confused *l* with *i*. Her approach to spelling also showed great confusion. She spelled in a letter-by-letter fashion with little idea about syllabication. She usually started with the correct letter but quite soon got lost in the process and guessed at random. This was true despite the fact that her grade scores were relatively high on the tests of reading and sounding syllables.

Although Case 13's techniques of attacking unfamiliar words are, on the average, more than three grades below her mental grade, they represent mainly M ratings in comparison with her grade score in silent reading and oral reading. The V.L. rating on reversal errors is an exception. Although her word-study techniques are immature, this girl depended greatly upon them and made relatively little use of the meaning. With an I.Q. of 122 she has exceptional native capacity for taking advantage of the thought.

Tests of handedness revealed that Case 13 was dominantly right-handed. Her eyes were reported not to be perfectly coordinated. This may have caused some strain which may have been related to her academic difficulties. Her hearing acuity was very good. Her general health was also excellent.

The significant factor about all the test results is that Case 13 is working far below capacity in reading and spelling. She is a good illustration of the fact that a bright child may fail to utilize her capacities fruitfully in learning to read. Her immature fumbling with the word-analysis techniques and especially her failure to make use of context clues are striking examples of poor applications of superior intelligence.

Treatment. The first step in dealing with Case 13 was to interpret the girl's emotional needs to the parents. It was pointed out that the girl might not profit from remedial instruction unless she was helped to feel more adequate. Her proper status in the family needed to be recognized. It was pointed out that unless a feeling of security and a sense of greater adequacy could be given to the girl, improvement would come slowly. Suggestions were made concerning ways of building up the girl's self-confidence. Suggestions were also offered about helping her older sister to feel more secure, so that she could more easily accept Case 13 in the family circle. The parents showed considerable insight when these matters were discussed. A change was immediately apparent in their attitude toward the child.

It was suggested that Case 13 have a half hour of remedial reading work each day. The program at school was not flexible enough to include a period during the regular school day, but it was arranged for Case 13 to have this work after school was over—a poor policy in most instances. The importance of going slowly was also stressed so that the girl might experience success at the outset of the program. The need for constant praise and encouragement was also discussed. The parents were told quite frankly that they must bring no pressure to bear on the girl, and that, if possible, their own anxiety about her progress in reading should not be revealed. The importance of excluding the older sister from the lessons as well as from family discussion about this work at the dinner table was emphasized.

Second- and third-grade materials were used at the outset. She was highly interested in stories about animals, and the initial program centered around this type of material. The need for train-

Exercises

ing in the recognition of sounds, syllables, blending, and a systematic attack on unfamiliar words was also stressed. Exercises stressing left-to-right orientation were also planned in order to decrease reversal errors. Special attention was given to planning use of context clues and reading for the thought.

Results. This family moved out of town immediately after the diagnostic study was made, but the program outlined above was carried out by a remedial reading teacher in the new school. There was no opportunity to give the diagnostic tests again. Reports, however, from both the parent and the remedial teacher indicated a great improvement in family attitudes and in the girl's attitude toward schoolwork. There was also evidence of improved social and emotional development. School report cards indicated steady progress; although test scores were not available the reports indicated that at the end of six months of remedial instruction the child was probably reading at least up to her actual grade level.

Exercises

1. In which of the cases described in this chapter is the reading difficulty believed to be due to the poor management of the child at home or school? Can you report any cases in which other types of unfortunate social factors were important influences?
2. How can you tell whether the reading defects are best described as *general* backwardness or immaturity, on the one hand, or *specific* deficiencies on the other?
3. Make up a set of grade scores for an imaginary case for other members of your group to diagnose.
4. If you disagree with the author's interpretation of any of the cases described in the chapter, give your reasons for doing so.
5. How can you tell whether lack of interest in learning to read is the *cause* or the *result* of difficulty in learning?
6. In making a prognosis, that is predicting the probable improvement a pupil may make, what factors do you consider most important?

Appendix 1

References for Further Reading

The literature dealing with the improvement of reading is now so large that a comprehensive list of references would comprise a book in itself. Fortunately, E. A. Betts and T. M. Betts have published an *Index to Professional Literature on Reading and Related Topics*, American Book Company, New York, 1945, a volume of 137 large pages. For a comprehensive list of published reports this book is recommended.

Beginning in 1926, W. S. Gray has published an annual "Summary of Reading Investigations," which provides an excellent annotated bibliography of research studies. These reports have appeared in the *Journal of Educational Research* since 1932.

With such complete sources of information as these available, it is unnecessary to attempt a comprehensive bibliography in this book.

Below are given titles to two lists of books which are, in the main, comprehensive, written especially for the teacher and the reading specialist. The first list consists of books dealing with diagnostic and remedial work

References for Further Reading

and the second of the volumes concerned primarily with teaching reading in the classroom. Other references appear in the individual chapters.

Books on Diagnostic and Remedial Methods

- Betts, E. A., *The Prevention and Correction of Reading Difficulties*, Row, Peterson & Company, Evanston, Ill., 1936, 402 pp.
- , *Foundations of Reading Instruction*, American Book Company, New York, 1946, 757 pp.
- Cole, Luella, *The Improvement of Reading with Special Reference to Remedial Instruction*, Farrar & Rinehart, Inc., New York, 1938, 338 pp.
- Dolch, E. W., *A Manual of Remedial Reading*, 2nd ed., Garrard Press, Champaign, Ill., 1945, 460 pp.
- Durrell, D. D., *Improvement of Basic Reading Abilities*, World Book Company, Yonkers-on-Hudson, New York, 1940, 407 pp.
- Fernald, Grace, *Remedial Techniques in Basic School Subjects*, McGraw-Hill Book Company, Inc., New York, 1943, 349 pp.
- Gillingham, A., and B. Stillman, *Remedial Training for Children with Specific Disability in Reading, Spelling, and Penmanship*, Sackett & Wilhelms, New York, 1940.
- Harris, A. J., *How to Increase Reading Ability*, Revised Edition, Longmans, Green and Company, New York, 1947.
- Hildreth, G., and J. Wright, *Helping Children to Read*, Teachers College, Columbia University, New York, 1940, 90 pp.
- Kirk, S. A., *Teaching Reading to Slow Learning Children*, Houghton Mifflin Company, New York, 1940, 225 pp.
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- McCullough, C. M., R. Strang, and A. E. Traxler, *Problems in the Improvement of Reading*, McGraw-Hill Book Company, Inc., New York, 1946, 406 pp.
- Monroe, Marion, *Children Who Cannot Read*, University of Chicago Press, Chicago, 1932, 205 pp.

- , and B. Backus, *Remedial Reading*, Houghton Mifflin Company, Boston, 1937, 171 pp.
- Russell, D. H., E. E. Karp, and E. I. Kelly, *Reading Aids Through the Grades*, 225 remedial reading activities, Teachers College, Columbia University, New York, 1938, 90 pp.
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- Strang, R., *Problems in the Improvement of Reading in High School and College*, The Science Press Company, Lancaster, Pa., 1940.
- Witty, P., and D. Kopel, *Reading and the Educative Process*, Ginn and Company, Boston, 1939, 374 pp.

Books on the Teaching of Reading

- Betts, E. A., *Foundations of Reading Instruction*, American Book Company, New York, 1946, 757 pp.
- Bond, G. L., and Eva Bond, *Teaching the Child to Read*, The Macmillan Company, New York, 1943, 356 pp.
- Booker, I. A., *Better Reading Instruction*, N.E.A. Research Bulletin 13: No. 5, 50 pp.
- Broom, M. E., and others, *Effective Reading Instruction*, McGraw-Hill Book Company, Inc., New York, 1942, 482 pp.
- Dolch, E. W., *Teaching Primary Reading*, Garrard Press, Champaign, Ill., 1941, 307 pp.
- , *The Psychology and Teaching of Reading*, Ginn and Company, Boston, 1931, 261 pp.
- , *Reading and Word Meanings*, Ginn and Company, Boston, 1927, 129 pp.
- Gans, Roma, *Guiding Children's Reading Through Experiences*, Teachers College, Columbia University, New York, 1941, 86 pp.
- Gates, A. I., *Interest and Ability in Reading*, The Macmillan Company, New York, 1930, 260 pp.
- , *New Methods in Primary Reading*, Teachers College, Columbia University, New York, 1928, 236 pp.

References for Further Reading

- Gray, W. S., ed., *Reading and Pupil Development*, University of Chicago Press, Chicago, 1940, 355 pp.
- , *Recent Trends in Reading*, University of Chicago Press, Chicago, 1939, 366 pp.
- , *The Appraisal of Current Practices in Reading*, University of Chicago Press, Chicago, 1945, 255 pp.
- , *Reading in Relation to Experience and Language*, University of Chicago Press, Chicago, 1944, 226 pp.
- , *Adjusting Reading Programs to Individuals*, University of Chicago Press, Chicago, 1941, 344 pp.
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- Ramsey, E., ed., *Reading for Fun for Boys and Girls in the Elementary School*, prepared for the National Council of Teachers of English, Washington, D. C., 1937, 104 pp.

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- Smith, N. B., *American Reading Instruction*, Silver Burdett Company, New York, 1934.
- Stone, C. R., *Better Advanced Reading*, Webster Publishing Company, St. Louis, Mo., 1937, 292 pp.
- , *Better Primary Reading*, Webster Publishing Company, St. Louis, Mo., 1937, 536 pp.
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Appendix 2

Part I. Directions for Using the Gates Reading Diagnostic Tests

These tests must be administered to one child at a time and their administration requires from one-half hour to one hour, according to the number of subtests used. The tests require the constant attention of both examiner and child, and the examiner must be thoroughly familiar with the test materials and their organization. Two of the subtests demand some dexterity on the part of the examiner, and the technique of giving them must be practiced.

Skill in dealing with children is as essential as familiarity with the administration of the test. The poor reader has frequently formed attitudes of dislike for the reading situation since he has met failure consistently in it in the past. Nevertheless, it is necessary that the child attend actively and do his best to succeed on the test. Encouragement is helpful, but only the youngest or dumbest children are likely to accept it at face value. It must be given judiciously. Overpraise is tactless and unconvincing. A friendly relationship between examiner and subject is essential to secure reliable test results. This is often best secured by observing the pupil in

the classroom and having one or more informal meetings with him before any of the tests are given.

The subtests

There are eight general divisions within the Diagnostic Tests:

1. Oral Reading
2. Oral Vocabulary
3. Reversals Test
4. Phrase Perception
5. Word Perception and Analysis (2 subtests)
6. Spelling
7. Visual Perception Techniques (7 subtests)
8. Auditory Techniques (4 subtests)

It is seldom necessary to give all these tests. The selection of those which will provide the most useful information about a child is a matter for the judgment of the examiner. The tests are arranged in order so that the reading of connected material and of words precedes the tests of special skills, and the more complex component skills are tested before the detailed ones. Because of this arrangement it is possible for the examiner to terminate the test at any point where the child shows comparative mastery of the skill being tested.

For example, the seven subtests of the Visual Perception Techniques section are arranged in the following order: Syllabication; Recognition of Syllables; Recognition of Phonograms; Blending Letter Sounds; Reading Capital Letters; Reading Small Letters. If the subject is able to respond with few or no errors to the Syllabication Test and to the Recognition of Syllables Test, there is little doubt of his ability to recognize phonograms or to blend or read letters. How many of the subtests should be given to secure adequate information about a particular child, without unduly fatiguing or discouraging him, is a decision dependent both on experience with the tests and on knowledge of children. Sometimes it is necessary to give only a few of the subtests, supplementing them with information obtained from silent reading tests and other sources. Usually the Oral Reading Test, the Reversals Test and the Recognition of Syllables and Phonograms Test are given as a minimum. Often the child's ability in spelling is already known from achievement tests; his score on an oral vocabulary test, such as that in the Stanford-Binet test of Intelligence, Revised, Form L, may be available to the examiner. Such scores can be substituted for those otherwise obtained from the Diagnostic Tests.

Directions for Using the Gates Reading Diagnostic Tests

Materials Required for the Gates Diagnostic Tests

The materials needed for the administration of the tests are published by the Bureau of Publications, Teachers College, Columbia University, New York 27, N. Y.

They are:

1. The *Manual of Directions*, which contains directions for administering and scoring all the subtests, and tables of norms to be used in interpreting the scores.
2. A set of four cards with spiral binding, to be placed in the hands of the child being examined. There are two forms of the tests. The child reads from this set of cards and the examiner records his responses in the Pupil's Record Booklet. Form I may be used for the first administration of the tests, Form II for a subsequent examination after a lapse of time or a period of remedial instruction.
3. The Pupil's Record Booklet, comprising 16 pages, contains reproductions of the test materials for both forms, arranged so that the examiner may conveniently record the child's errors. The first page of this record booklet contains a form on which the examiner can summarize all the information obtained from the child's test performance, together with other relevant information, such as scores on intelligence and silent reading tests. Within the booklet, space is provided at appropriate points for the comments of the examiner and for check lists which enable him to record his impressions of many qualitative aspects of the child's performance.
4. Two cards used in giving the "flash perception" tests.

Recording the Test Results

There are three columns provided on the first page of the Pupil's Record Booklet, with the headings: 1. Raw Score; 2. Grade Score; 3. Rating. The raw score is sometimes the number of items correct, sometimes the number wrong. It is always found by simple addition, and the directions for each test indicate clearly whether credits or debits are to be added. The equivalent grade score is also easily obtained. The norm tables at the back of the *Manual of Directions* provide a grade score for each raw score. The raw and grade scores for all the subtests are to be entered on the top sheet of the record booklet, together with a rating for each grade score.

Obtaining Ratings for Grade Scores on the Diagnostic Tests

The rating is very important for the interpretation of test scores. Since the purpose of the tests is to lead to the discovery of confusions, deficiencies, and weaknesses in reading ability which contribute to an existing reading difficulty, the examiner is interested primarily in low scores. Each score is scrutinized for the answer it may contribute to the following question: "Is this pupil so far below the average in . . . (the skill which the score represents) that it is a deterrent to his progress in reading?" The rating column answers this question for each subtest score by indicating whether the score is or is not "low" or "very low."

The Table for Rating the Degree of Retardation Represented by a Pupil's Grade Score, Table 1 in the Manual of Directions, and shown on page 630, is to be used for rating all subtest scores. By its use any subtest grade score or any average subtest grade scores may be rated M, medium or average; L, low; or VL, very low. Each possible grade position of the subject, from 2.0 (the beginning of the second grade), through 4.0 (the beginning of the fourth grade) is listed, and then each half-year grade position through 6.0 (the beginning of the sixth year). Beside each grade position will be found an accompanying grade score which should receive a low or L rating, and a grade score which should be rated very low or VL. Reading from the table, we find that a child whose actual grade placement is 3.9 (he has completed nine months in the third grade) will receive a rating of low or L for any test on which his score is 2.9, and a rating of very low or VL for any test on which his score is 2.4. Any test scores which are equivalent to his actual grade placement, 3.9, will receive a rating of M, average. Scores above his actual grade placement are rated M+ for somewhat above average or H for high.

The mental grade, obtained by using the grade equivalent to a child's mental age obtained from one or more standard intelligence tests, is sometimes used as the criterion for rating instead of the actual grade placement, particularly with children of less than average intelligence. It is sometimes illuminating to use the mental grade of a bright child in the same way, since a child of better than average ability, who is doing average work for his grade placement, is actually performing below his potential level of achievement. The use of the mental grade as a criterion for rating was discussed in Chap. 4 and will be considered further in the section, *Methods of Interpreting Scores*, below.

Directions for Using the Gates Reading Diagnostic Tests

Let us return to our subject whose actual grade status is 3.9. Let us assume that he has made a grade score of 3.6 on the Oral Reading test. This is not quite halfway between his actual grade status and 2.9, the score for which he would receive a rating of L, low. We may rate this score, 3.6, M-minus and abbreviate it, M—. If his oral reading grade score had fallen halfway between the M and the L scores, we might rate him halfway between M and L, that is M-L. Below 3.4 but above 2.9, his rating would be L+. Below 2.9 the ratings would fall from L—, for 2.8 and 2.7, to L-VL midway between the L and VL points at 2.6, to VL+ at 2.5, to VL at 2.4, and finally to VL— below 2.4. Such ratings are helpful in interpreting the seriousness of reading defect, even though the difference between M— and L does not appear great, because the rating points were established by the same sort of process as the norms, and represent a rating of the child's performance in comparison with the majority of children. The tables tell how a child compares with the average child.

Any score as low as the L score merits careful consideration and is suggestive of a handicap. A score as low as VL is practically certain to indicate a handicap, provided it is valid, and not due to misunderstanding of directions or some other factor not related to ability on the test. In general, the lower the score, the greater the probability that it reveals a handicap. Strong suspicions should be entertained when any score is L or lower; some suspicion when it is approaching the L level.

In certain subtests, where the reading skills being measured are elementary, the grade scores require special comment. Certain skills are completely mastered by the average child at a relatively early point in school life, for example, reading letters and giving sounds for letters. A child who makes no errors on the test Giving Letter Sounds, and receives the highest grade score possible according to the norms, can achieve a grade score on this test of only 3.5. In the case of a child with an actual grade placement in the fifth or sixth school year, such a score appears to be a marked retardation. Actually there is no discrepancy; the child has reached the level of skill which we expect of a child of his grade placement; his performance on the test is, as it should be, perfect, but the average child in Grade 3.5 will achieve an equally good score. In order to avoid any error in interpretation of this kind, perfect scores on a test should be recorded with the symbol PS instead of a grade score. The Auditory Techniques tests, like the Visual Perception Techniques of elementary phonetic skills, have very low maximum grade scores and should always be marked PS when the child achieves a perfect score.

Methods of Interpreting Scores

The Use of the Actual Grade Placement Score as a Criterion. In making a diagnosis of reading ability, certain information is essential. The examiner must first determine the subject's actual grade position. In the tables of norms for the *Diagnostic Tests*, each grade is divided into tenths, each tenth corresponding to one month of a ten-month school year. Just as for the Gates silent reading tests, 2.0 means the beginning of Grade 2; 2.1 represents the end of the first month (or of the first tenth of the school year) of Grade 2; 2.5 means the end of the fifth month of Grade 2 or the end of the first half of the second school year; and 2.9 indicates the end of the ninth month (or the end of nine-tenths) of the second school year.

Any pupil whose reading grade, obtained from the table of norms for any test, or for the average of several tests, is the same as his actual grade position, shows exactly average ability at the time the test was given. If his reading grade is lower than his actual grade, it is clear that he is to some extent backward in reading skills needed for the work of his actual grade, and we turn to Table 1 in the Manual of Directions, as described above, in order to rate the degree of his reading retardation.

Comparison of Scores with an Average Reading Grade. A means of estimating the seriousness of particular difficulties revealed by the Diagnostic Tests is through comparison of the child's scores on the subtests with his average reading grade obtained from another source, such as a group of silent reading tests. Let us consider a child in Grade 4.6. The average of his scores on the Gates Basic Reading Tests is 3.5, so that he is about one year below the average in his reading performance. We may use the average reading grade, 3.5, as a basis for comparison with his scores on the Diagnostic Tests just as if it were an actual grade placement in order to find out whether his reading performance is typical of children with reading grades of 3.5, or whether it is better or worse. To illustrate, consider the following grade scores obtained by one pupil:

Test	Grade Score
Oral reading	3.3
Syllabication	3.5
Recognition of syllables	3.6
Recognition of phonograms	3.4
Average of several reading tests . . .	3.5

Directions for Using the Gates Reading Diagnostic Tests

These scores are quite consistent with the average reading grade of 3.5, and we conclude that our subject is not especially deficient in any of the general skills represented in the list. In all these abilities, this pupil is very much like the average child in Grade 3.5. However, had his scores on the Syllabication and Recognition of Syllables and Phonograms tests fallen to grade scores of 2.6 or lower, we should have found it advisable to give special attention to improving these relatively low phonetic skills, even though his oral reading score is a grade above them. Moreover, had his phonics skills shown a grade score of 2.6 or lower, we should have administered additional tests of phonetic skills, for example, Blending Letter Sounds and Giving Letter Sounds, in order to uncover more specific weaknesses in his approach to new words and to build a program to remedy these weaknesses.

Comparison of Scores with Mental Age or Mental Grade. Another factor, in addition to actual grade status and general silent reading ability, should be considered in making a complete diagnosis of reading difficulty, and that is *intelligence*. Mental age from performance on the Revised Stanford-Binet Intelligence Test is probably the best single indication obtainable of the intellectual ability and hence of reading achievement. Since it is often more convenient to think of a child's ability in terms of grade position than in terms of age, the mental grade may be used instead of the mental age.

Table II, the Table for Translating Age Scores into Grade Scores or Grade Scores into Age Scores, in the Manual of Directions and reproduced on page 631 in this book, may be used for translating mental age into mental grade. The mental age should be located in the age column and the mental grade will be found beside it, just as when the table is employed for translating actual grade scores into age scores, or vice versa. For example, a mental age of eight years and nine months, 8.9, on the Stanford-Binet Revised Intelligence Test, Form L, is equivalent to a mental grade of 3.3; this pupil has an intelligence equal to that of the average child in Grade 3.3.

What is this child's actual age? What is his grade placement? If his chronological age is eight years and five months, 8.5, we may expect him (from Table II) to be in Grade 2.9, or thereabouts, and if he is in fact in the late second or early third grade, we may expect average reading performance from him. However, if our subject with mental age 8.9 is actually in Grade 4.8 and has a chronological age of eleven years no months, 11.0, we may see at once that his mental age is not adequate to the work

of the grade in which he is placed, for the average child with a mental age of 8.9 is in Grade 3.3. We shall not be astonished, then, if we find that this pupil's reading grades are more like those of a beginning third-grade child than like those of a typical fourth grader. We shall know, too, that his rate of progress in reading is likely to be somewhat slower than the average child's.

The Influence of School Administration Policies. It must be pointed out, finally, that methods of promotion vary from school to school, and that the influence of reading ability, intelligence, and grade status will vary with the promotion policy. In some cases, chronological age is the primary factor in children's grade placement, in others mental age, in still others reading ability or attainment in the basal subjects. Where age is the determining factor there will be wide range of reading ability in each class, and many adjustments of the reading program to individual needs will be required. The value of the diagnostic tests in interpreting reading difficulty will be increased by experience in taking into account these various factors, making allowance for them, and giving them the weights required by the circumstances attending each case.

In the remainder of this section, the directions for administering each of the Diagnostic Tests will be given.

The Gates Oral Reading Test

There are two forms of this test, each consisting of seven paragraphs arranged in a series of increasing difficulty. Each paragraph receives a raw score dependent upon the number of errors made in reading it, the raw score equivalent to a given number of errors being read from Table III in the Manual of Directions and reproduced on page 631 of this book. One form of the test is reproduced on pages 588-589.

Because the paragraphs are of graded difficulty, it frequently happens that poor readers are unable to read even the first one or two without effort and errors; nonreaders may be unable to read even the first paragraph. In order to obtain a reliable grade score for this test, however, it is necessary that the child being tested should read at least the first four paragraphs, regardless of how poor his performance may be. If the child is a very poor reader and has difficulty with even the easiest material, the test may be terminated after the reading of the fourth paragraph, provided that he has made eleven or more errors in reading each of two consecutive paragraphs. For example, if a child made the following errors:

Directions for Using the Gates Reading Diagnostic Tests

Paragraph 1	3 errors
" 2	6 "
" 3	12 "
" 4	19 "

it would be permissible to stop at the end of the fourth paragraph. If, instead, his errors had been

Paragraph 1	0 errors
" 2	3 "
" 3	8 "
" 4	13 "

it would be necessary to have him continue with the reading of paragraph 5. If on paragraph 5 he made only ten errors, the reading should continue with paragraphs 6 and 7, or until he has made eleven or more errors on two consecutive paragraphs. However, this alternation of paragraphs with less and more than eleven errors is unlikely to occur because the paragraphs increase so rapidly in difficulty. An analysis of the difficulty of each paragraph is given in the Manual of Directions, with suggestions for its use.

The child being tested reads from his set of four spirally bound cards, on which the oral reading paragraphs are printed. The examiner records his errors on copies of these paragraphs printed in the Pupil's Record Booklet. Below each paragraph in the Record Booklet are spaces for entering the number of errors and the equivalent raw score. The sum of all the raw scores can be converted into an age or grade score by the use of Table IV. Attention is called to the fact that *the first half of Table III is to be used to obtain raw scores for the first five paragraphs only, while the second half of the table is to be used only for the last two paragraphs.*

Administration. The examiner tells the child, "I should like you to read some of these paragraphs for me. Begin with the first paragraph when I say 'Begin' and stop at the end of each paragraph until I say 'Next.' If you find some hard words, say them the best you can without help and continue reading." The examiner uses the method of recording described in detail below.

If the child hesitates for five seconds on a difficult word, the examiner pronounces it for him. As the paragraphs become difficult, he is likely to become discouraged. He should be urged to keep trying. If necessary, he may be given the explanation that the paragraphs which he finds so difficult are meant for older boys and girls, but that the examiner wishes him to see if he can do anything with them.

Recording the Errors. Since the sum of errors is converted first into a raw score, then into a grade score, errors must be accurately recorded. In addition, an analysis of the kinds of errors made in reading these paragraphs provides information important for diagnosis. The following system for recording errors is simple to use and easy to analyze.

- a. *Hesitation.* If a pupil hesitates for five seconds on a difficult word, pronounce it for him and draw a line through it.

Example: donkey

- b. *Mispronunciations* (whole or part). Underline the word or part mispronounced. Write the child's pronunciation above phonetically.

moth-eer ed m
Examples: mother scarcely houses

- c. *Omissions.* Encircle the omitted word or part.

Examples: dog be gan

- d. *Substitutions.* Write the word given directly above the word for which it was substituted.

mouse
Example: rat

- e. *Insertions.* Write in the inserted word above a caret.

then
Example: When he came
 ^

- f. *Repetition.* Write "r" above the first word repeated if *two or more words are repeated*, and draw a wavy line under the group of words repeated.

r
Example: The dog's body was brown.

Do not confuse poor enunciation or foreign accent with real errors; give the child the benefit of the doubt.

Analysis of Errors. This analysis is made on the first four paragraphs only. It is made by means of the categories set up below. A convenient system of classification is to work through the test, line by line, writing

Directions for Using the Gates Reading Diagnostic Tests

in the margin of the record booklet opposite each line the category letters corresponding to the errors made in that line. The number of errors in each category can then easily be summed up by counting the number of times each letter occurs in the analysis. The categories of errors are:

- a. *Number of whole words omitted.* This includes failures to respond in five seconds (hesitations) and also words skipped over or "refused" by the child.
- b. *Whole words added.*
- c. *Repetitions of two or more words.*
- d. *Mispronunciations of whole words or parts of words.* All the errors classified in the categories g through k are summed up and their sum is the number of d—the total number of mispronunciations.
- e. *Reversals*, such as "was" for "saw," due to obvious pronunciation from right to left.
- f. *Order of parts incorrect.* Any case not entered under e in which the letters or word-parts are in a wrong order, such as *arnely* for *nearly*, *aws* for *saw*, *are* for *ear*.
- g. *The total number of words showing incorrect order.* This is the sum of the errors in categories e and f; the total number of words in which the order or letters or parts is incorrect.
- b. *Wrong beginnings.* These are cases in which the initial part of the word is wrong, but the order of parts is correct. For example: *bad* for *bad*, *stove* for *drove*, *as* for *is*. Cases in which the first part is omitted should also be placed in this category, that is, *ad* for *bad*, *rove* for *drove*, *is* for *his*. When an initial part is added to a word, as, for example, when *to* is read *into*, the errors should also be placed in this category.
- i. *Wrong middles.* The elements are in proper order, but the middle element is incorrect, for example, *row* for *raw*, *smelling* for *smiling*. Omission of middle parts, such as *door* for *doctor*, *had* for *head*, and addition of middle parts, such as *heard* for *head*, *bearing* for *being*, should also be placed in this category.
- j. *Wrong endings.* The elements are in proper order, but the terminal letter or syllable is incorrect, or omitted, or an additional syllable added; for examples of wrong endings, *it* for *is*; *dɪg* for *did*; *mad* for *made*; *all* for *alone*; *also* for *alone*; *peep* for *peak*; *cry* for *cried*; *start* for *stack*; for examples of omitted endings, *some* for *something*, *brow* for *brown*, *no* for *not*; for final parts added, *smiling* for *smile*, *rats* for *rat*, *stopped* for *stop*.

ORAL READING

1.

The boy had a dog.
The dog's face was black.
The dog's body was brown.
He had no tail at all.

2.

Once the dog saw a rat.
It was a bad rat.
The dog did not like the rat
on his place.
So he ran the rat into his hole.

3.

After the rat got into his hole,
he began to peek at the dog.
This drove the dog nearly mad.
He said: "I like raw meat to eat.
If you do not stop, I will eat you."
Then he left the rat alone.

4.

This talk only made the rat smile.
He could not stop smiling.
He stuck out his chin and cried:
"You are as dull as a donkey,
You are as silly as a monkey.
Let me give you a good tip.
You had better find a doctor now,
before it is too late.
Maybe he can do something for your head."

On this page and the following six pages are reproductions, in reduced size, of the cards placed in the pupils hands during an examination with the Gates Reading Diagnostic Tests, Form 1. By permission of the Bureau of Publications, Teachers College, New York, N. Y.

ORAL READING

5.

These remarks made the dog furious. He was so angry he could hardly control himself. He growled in dismay. He gnawed at the ground. Then he barked: "I am the protector of this residence. I am the champion of this estate. I will have no nonsense here. If you value your life and freedom you will depart at once."

6

The rat, a little frightened and very angry, screamed his reply: "What sublime conceit! What magnificent boastfulness! You have neither the courage nor the intelligence to execute your threat. You would perish miserably if your misguided human helpers did not provide you with protection. You think you are a valiant warrior but you are really nothing but a weak slave of humanity."

7.

The rat continued to scream in derision: "Ignoble beast, you are destined to pursue the disgusting existence of a vassal and if you aggravate my sensibilities further your survival will be presently jeopardized. Heed my warning, pathetic imbecile: Be discreet! Stop irritating me and my noble rodent kinsmen and mayhap we shall permit thee the privilege of sojourning briefly in these our exclusive provinces."

PHRASE PERCEPTION

1	a boy	11	the big ship
	—		—
2	the dog	12	he came home
	—		—
3	find me	13	it is mine
	—		—
4	see it	14	a fine day
	—		—
5	no tail	15	under the house
	—		—
6	my toy	16	catch the train
	—		—
7	make it	17	this is nice
	—		—
8	one sled	18	when it rains
	—		—
9	stop here	19	bring your books
	—		—
10	come back	20	wait for a car
	—		—
11	ride fast	21	give me my coat
	—		—
12	my chair	22	go to the store
	—		—
13	a little cat	23	park your car here

Directions for Using the Gates Reading Diagnostic Tests

WORD RECOGNITION, PRONUNCIATION, ANALYSIS AND SPELLING

1	so	we	is	do	1
	—	—	—	—	
2	as	go	at	or	2
	—	—	—	—	
3	the	not	can	hen	3
	—	—	—	—	
4	how	may	son	net	4
	—	—	—	—	
5	king	here	ball	came	5
	—	—	—	—	
6	grow	late	east	year	6
	—	—	—	—	
7	every	about	broom	child	7
	—	—	—	—	
8	paper	blind	climb	point	8
	—	—	—	—	
9	window	family	lonely	scratch	9
	—	—	—	—	
10	perhaps	plaster	servant	frighten	10
	—	—	—	—	
11	passenger	wander	counter	shepherd	11
	—	—	—	—	
12	interest	chocolate	citizen	elegant	12
	—	—	—	—	
13	dispute	portion	mansion	brilliant	13
	—	—	—	—	
14	conductor	brightness	guardian	restaurant	14
	—	—	—	—	
15	intelligent	construct	protection	temperature	15
	—	—	—	—	
16	position	profitable	reverence	astonishment	16
	—	—	—	—	
17	irregular	schoolmaster	revolution	unnecessary	17
	—	—	—	—	
18	lamentation	community	intelligence	national	18
	—	—	—	—	
19	satisfactory	illustrious	congratulate	preparation	19
	—	—	—	—	
20	superstition	affectionate	philosopher	treacherous	20

Reversible Words

on	ma	bad	was	no	am	war	net	rat	now
raw	ton	saw	dab	won	pot	tar	saw	star	peek
nap	spot	dear	top	war	ma	won	team	pal	even

Syllabication

inmo	ilry	enake	foter	divar	etfo	delow	elling
loterow	stadever	shoryold	indarill	urloate	adunick		
ryingad	surowar	hashola	ayleawa	atelary	mileahing		

Recognition of Syllables

ark	ick	ill	eat	ake	ose	eep	ine	ove	ight
ter	lea	ver	sta	hing	er	il	ir	un	ac

Recognition of Phonograms

la	ro	ne	su	ed	ha	co	ir	un	ow
st	al	tr	ch	cl	ea	oo	ai	ou	el

Directions for Using the Gates Reading Diagnostic Tests

Blending Letter Sounds

k-o n-a i-m e-t d-u-r i-c-k f-o-d p-i-m
u-l-k q-o-b p-e-x s-u-g y-i-l c-a-m-y
j-u-n-t v-o-l-d m-i-f-s h-a-r-n f-u-r-n w-o-l-d

Giving Letter Sounds

u o y i e a s t c p x f d
b z r m l q j k w g h n v

Reading Capital Letters

A E I O U Y W R B K D M T
F X V C G H J N Z S Q L P

Reading Lower Case Letters

e o a u i y w r b k d m t
f x v c g h j n z s q l p

k. Words wrong in two or more parts. All substitutions of one word for another fall in this category, for example, *mouse* for *rat*. Examples of words wrong in two or more parts are *biting* for *better*, *blow* for *brown*, *balloon* for *all*.

All mispronunciations are to be entered in *only one category*. The total number of *g*, *b*, *i*, *j*, and *k* errors is the total number of mispronunciations to be entered under *d*.

When the errors have been categorized, calculate the percentage of omissions in the total number of errors; for example, if a child made 40 errors, and 15 were omissions (category *a*) his percentage of omissions would be $37\frac{1}{2}$. The same procedure is followed for categories *b*, *c*, and *d*, in order to obtain the percentages of additions, repetitions, and mispronunciations among the errors.

Gates Oral Reading Test

Paragraph	Errors	Raw Score
1	2	4.0
2	6	0.8
3	11	0.5
4	21	0.0
Total	40	5.3

Analysis of Errors	Number of Errors	Percentage of Total
Omissions	15	$37\frac{1}{2}$
Additions	0	0
Repetitions	1	$2\frac{1}{2}$
Mispronunciations	24	60

By means of Table v we compare these percentages with the norms in order to see whether our subject has made a disproportionate number of errors in any of these four large categories. We use as the criterion the total number of errors made by the subject, in this case, 40. In Table v, along the left margin is a column containing the possible error totals in groups of five. For example, our subject's total falls in the group 40-44, the line fifth from the top. We find, by following this line across the page, that the average number of omissions made by children whose total error scores fall in this group is 41 per cent. Our subject's percentage of omissions is close to the norm. We find that our subject made fewer addition errors than the average, but again, the difference is so small that no importance attaches to it. His percentage of repetition errors is about average and his percentage of mispronunciations very slightly above average.

Directions for Using the Gates Reading Diagnostic Tests

(Since these percentages are used for purposes of general comparison, such small differences are not significant.)

Had our subject's percentage of repetitions been 20 per cent instead of 2 1/2 per cent, his performance would have been atypical for mispronunciation. It is likely that his mispronunciations and omissions would have been correspondingly lower than average.

Analysis of Kinds of Errors. Table IV provides us with a means of rating children on the kinds of mispronunciation errors they make. During the standardization procedure it was found that, for any total number of mispronunciation errors, the average child tended to have a definite proportion of each kind of mispronunciation. In the table, a column of mispronunciation scores is found along the left margin. For each total mispronunciation score an average (M) and a low (L) score are given for all the categories that make up the total mispronunciation score. A low score was found in 10 per cent or fewer of the cases, and so a child who is rated low on one of the categories is showing a clearly undesirable and atypical pattern of error.

Our subject made twenty-four mispronunciation errors, distributed as follows:

Reversals	0
Partial reversals	2
<i>Total</i>	2
Wrong beginnings	6
Wrong middles	3
Wrong ending	2
Several wrong parts	13

The column along the left margin contains figures representing the possible total mispronunciation scores from 6 to 30. The norms, which may be read across each line of the table, are in terms of the number of each kind of mispronunciation to be expected for these total mispronunciation scores. Reading across the line representing a total of twenty-four mispronunciation errors, we find that our subject made two partial reversal errors as compared with the norm of 0, and no complete reversal errors as compared with a norm of 1. We conclude that his total reversal score of 2 is not very different from the score of 1 listed as the norm, and we rate him M (average) on the number of reversals.

Our subject, however, made twice as many wrong beginning errors as the norm, and receives a rating of L. He rates an M for his wrong middle errors, his score being the same as the norm; his wrong endings are much

lower than the norm, and he receives a rating of M+, but this high rating is obviously due to the fact that he has an L— rating in the category *several wrong parts*. Our subject apparently has almost no word-analysis techniques, and is given to guessing words from the context without using any other technique of approach. As a result his largest number of mispronunciations falls in the *several parts wrong* category. Our conclusion is supported by the fact that he made more errors than the norm in *wrong beginnings*, which would not be the case if he used initial clues. His middle and ending errors are low only because he read so many words without any regard to their phonetic components. If he does not recognize a word at sight he is at a complete loss. He is probably the kind of youngster, who, having hesitated over *rat*, and been told the word by the examiner, remembers the general idea, and on the next occasion where the word *rat* would be appropriate, substitutes *mouse*. This is context reading unsupported by word-analysis techniques. With such a subject we expect either very poor scores in the Visual Perception Techniques section of the Diagnostic Tests, or to find that he has certain isolated skills which he does not employ when he is reading. For example, the child may be able to give the sounds of some letters in isolation, but fails to use his knowledge in his approach to new words.

The examiner is now ready to enter the scores obtained on the Oral Reading Test on the top sheet of the Pupil's Record Booklet. Directions for making this entry are given in the Manual of Directions.

Check Lists of Errors. On page 4 of the Record Booklet, following the two forms of the *Oral Reading Test*, two check lists are provided for the convenience of the examiner. These enable the examiner to record in the most economical form and without delay his impressions of the child's approach to the oral reading situation. The check list of *difficulties* includes a number of items of a general nature which may describe a particular child's reading behavior, such as: *Read slowly, word by word, seems nervous, tense, insecure; voice low and indistinct; enunciation slurred, unclear.* The check list of word pronunciation includes items describing the child's use of reading techniques, such as: *Usually makes a detailed study of unfamiliar words with audible trials; usually gives a wrong word quickly and proceeds; appears to depend mainly on general configuration; appears to depend mainly on letter sounds.* By the use of the check lists many fleeting impressions valuable to the examiner in the interpretation of the child's reading behavior may be preserved and reconsidered at leisure.

The Gates Oral Vocabulary Test

The uses of this test were discussed in Chaps. 4 and 8. If it is to be used, the examiner should keep in mind the fact that this test is not very reliable when applied to pupils of average or lower ability in the first three grades. However, observation of the child's behavior in the test situation is often helpful in the consideration of his problems, and the quality of a child's responses and his flexibility in responding in different test situations is particularly illuminating. A more reliable measure may be secured by giving both forms of the test. The test appears on pages 602-3.

Description of the Test. As the child does no reading during the administration of this test, it is not represented in the pupil's material. There are two forms, in each of which thirty words from the Thorndike Word List, ranging from very familiar and easy to difficult, are read by the examiner to the child. The examiner reads a test word, pauses, and reads four alternate responses, one of which is a synonym of the test word.

Directions for Administration. The examiner tells the child that this is a test to find out how well he knows the meaning of words. The first exercise is used for demonstration. The examiner reads the first part of the sentence, then the following four words with a slight pause between them, as follows:

"A head is a part of a—*coat, saw, man, box.*

Which one of these words is right?" Then at once, before the child answers, the examiner rereads the whole sentence. If, after the second reading the child gives the correct answer, the examiner says, "Yes, that is correct," and continues with the test. If the child repeats a word that is an incorrect answer, the examiner goes over the exercise again, explaining each response in the following way: "A head is a part of a coat—No, that is wrong, a head isn't part of a coat, is it? Is a head a part of a saw?"

The exercises should be read clearly, without haste. Inasmuch as the method of administration makes it easy for a child to give a thoughtless wrong answer after the first reading of an item, the examiner must insist that each exercise will be read *twice* before the child gives his answer. This is particularly important as the words become more difficult. No exercise, however, should be read more than twice.

As the words increase in difficulty, most children reach a point beyond which they will fail consistently. It is usually safe to stop after a child

GATES READING DIAGNOSTIC TESTS

PUPIL'S RECORD BOOKLET

By ARTHUR I GATES, Professor of Education
Teachers College, Columbia University

Pupil's Name _____ School _____ Date _____

Pupil's Age _____ Birthday _____ Grade _____ Examiner _____ Teacher _____

	1 Raw Score	2 Grade Score	3 Rating		1 Raw Score	2 Grade Score	3 Rating
AGE, GRADE, INTELLIGENCE				PHRASE PERCEPTION			
1. Chronological Age				1. Number Phrases Correct			
2. Grade Status				WORD PERCEPTION, ANALYSIS, ETC.			
3. Binet I.Q.				1. Flash Presentation			
4. Binet I.Q.				2. Untimed Presentation			
SILENT READING TESTS				SPELLING			
1.				1. Gates Test			
2.				VISUAL PERCEPTION TECHNIQUES			
3.				1. Syllabication			
4.				2. Recognition of Syllables			
5.				3. Recognition of Phonograms			
Average of Reading Tests				4. Blending Letter Sounds			
ORAL READING				5. Giving Letter Sounds			
1. Gates Oral - Total Score				6. Reading Capital Letters			
a. Omissions, Words				a. Speed			
b. Additions, Words				b. Errors			
c. Repetitions				7. Reading Small Letters			
d. Mispronunciations				a. Speed			
e. Full Reversals				b. Errors			
f. Reversal of Parts				AUDITORY TECHNIQUES			
g. Wrong Order (s-f)				1. Blending Letter Sounds			
h. Wrong Beginnings				2. Giving Letters for Sounds			
i. Wrong Middles				3. Giving Words-Initial Sounds			
j. Wrong Endings				4. Giving Words-Ending Sounds			
k. Wrong Several Parts				OTHER TESTS			
VOCABULARY				1. Gates Oral Vocabulary			
REVERSAL TEST				2.			
1. Total Errors							
2. Per Cent Reversals							

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Directions for Using the Gates Reading Diagnostic Tests

Oral Reading

ORAL READING

FORM I

1.

The boy had a dog.
The dog's face was black.
The dog's body was brown
He had no tail at all.

Errors . . . Score . . .

2.

Once the dog saw a rat.
It was a bad rat.
The dog did not like the rat
on his place
So he ran the rat into his hole

Errors . . . Score . . .

3.

After the rat got into his hole,
he began to peek at the dog
This drove the dog nearly mad.
He said: "I like raw meat to eat.
If you do not stop, I will eat you"
Then he left the rat alone.

Errors . . . Score . . .

4.

This talk only made the rat smile
He could not stop smiling.
He stuck out his chin and cried
"You are as dull as a donkey,
You are as silly as a monkey
Let me give you a good tip.
You had better find a doctor now,
before it is too late
Maybe he can do something for your head."

Errors . . . Score . . .

5.

These remarks made the dog furious. He was so angry he could hardly control himself. He growled in dismay. He gnawed at the ground. Then he barked. "I am the protector of this residence. I am the champion of this estate. I will have no nonsense here. If you value your life and freedom you will depart at once."

Errors . . . Score . . .

6.

The rat, a little frightened and very angry, screamed his reply "What sublime conceit! What magnificent boastfulness! You have neither the courage nor the intelligence to execute your threat. You would perish miserably if your misguided human helpers did not provide you with protection. You think you are a valiant warrior but you are really nothing but a weak slave of humanity"

Errors . . . Score . . .

7.

The rat continued to scream in decision "Ignoble beast, you are destined to pursue the disgusting existence of a vassal and if you aggravate my sensibilities further your survival will be presently jeopardized. Heed my warning, pathetic imbecile. Be discreet! Stop irritating me and my noble rodent kinsmen and mayhap we shall permit thee the privilege of sojourning briefly in these our exclusive provinces"

Errors . . . Score . . .

Total Credits = Raw Score
Grade Score . . .
Rating

Oral Reading

ORAL READING

FORM II

1.

The girl had a cat.
The cat's fur was white.
The cat's paws were sharp.
She had spots on her tail.

Errors . . . Score

2.

One day the cat saw a mouse
It was a very big mouse.
The cat saw the big mouse
taking a nap.
Now the cat could have a pal

Errors Score

3.

After the mouse had had its nap,
he took a peek at the cat.
He saw the top of the cat's head.
He knew that cats like raw meat.
He feared the cat would be mad.
"I want no war, now," he said.

Errors Score

4.

But the big white cat wanted a pal.
She said: "I am not a bad cat.
I think you would make a dear pal.
You and I would make a good team.
You can be the star of the team.
We will make war on Mr Rat.
If you will help me now, we can
put Mr. Rat on the spot."

Errors Score

5.

This offer made the mouse afraid The mouse
thought that a trick was up. He squealed in dis-
may. He rushed to a hole. Then he shouted: "I
am not the idiot you imagine I am the smartest
creature alive. I will not be a member of your team.
If you embarrass me, you will regret your profound
mistake."

Errors Score

6.

The poor cat was pained and astonished. She
said: "How incredibly silly! How perfectly ridicu-
lous! You have neither the foresight nor the judg-
ment of the stupidest kitten. You will perish
shortly as a consequence of your restricted intellect.
I sought only to rescue you from the absurdity of
your lowly existence. My sole purpose was to offer
you the assistance which you sorely need"

Errors Score

7.

The cat, becoming increasingly enraged, con-
tinued: "I profoundly regret the colossal ignorance
and ingratitude which your behavior and com-
ments reveal. I condescended to proffer you the
privileges of a visitation in an advanced environ-
ment I regret your supreme lack of acumen.
Thou art a colossal moron. I offer no additional
inducements. Henceforth, I admonish thee, be-
ware the righteous indignation of my brotherhood."

Errors Score

Total Credits = Raw Score

Grade Score

Rating

Directions for Using the Gates Reading Diagnostic Tests

Oral Reading

ORAL READING

FORM I

ANALYSIS OF ERRORS

Base the analysis on the first four paragraphs only

- .. a. Words omitted
- .. b. Words added
- .. c. Repetitions
- .. d. Mispronunciations
- .. e. Full reversals
- .. f. Reversal of parts
- .. g. Wrong order (e + f)
- .. h. Wrong beginnings
- .. i. Wrong middles
- .. j. Wrong endings
- .. k. Several parts wrong

CHECK LIST OF DIFFICULTIES

- .. Reads slowly, word by word.
- .. Reads slowly, phrasing and emphasis poor.
- .. Reads rapidly, phrasing and emphasis poor.
- .. Reads rapidly, skipping or mispronouncing unfamiliar words.
- .. Seems nervous, tense, insecure
- .. Reads with false confidence—as if it were easy
- .. Reads in monotone
- .. Reads with artificial expression.
- .. Voice higher pitched than conversational tone
- .. Voice low and indistinct
- .. Enunciation slurred, unclear

CHECK LIST OF WORD PRONUNCIATION

- .. Usually "refuses" unfamiliar words.
- .. Usually gives a wrong word quickly and proceeds.
- .. Usually makes a detailed study of unfamiliar words with audible trials
- .. Usually stops and studies inaudibly
- .. Appears to depend mainly on general configuration
- .. Appears to depend mainly on syllabication
- .. Appears to depend mainly on phonograms like fr and letter sounds.
- .. Appears to depend mainly on letter sounds.
- .. Appears to depend mainly on spelling out the word
- .. Tries various methods of attack.
- .. Gives up very easily
- .. Too quick and superficial
- .. Too slow and labored.
- .. Lacks any consistent method of attack

FORM II

ANALYSIS OF ERRORS

Base the analysis on the first four paragraphs only

- a. Words omitted
- b. Words added
- .. c. Repetitions
- .. d. Mispronunciations
- .. e. Full reversals
- .. f. Reversal of parts
- .. g. Wrong order (e + f)
- .. h. Wrong beginnings
- .. i. Wrong middles
- .. j. Wrong endings
- .. k. Several parts wrong

CHECK LIST OF DIFFICULTIES

- Reads slowly, word by word
- Reads slowly, phrasing and emphasis poor
- Reads rapidly, phrasing and emphasis poor.
- Reads rapidly, skipping or mispronouncing unfamiliar words.
- Seems nervous, tense, insecure
- Reads with false confidence—as if it were easy
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CHECK LIST OF WORD PRONUNCIATION

- .. Usually "refuses" unfamiliar words
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- .. Appears to depend mainly on spelling out the word
- .. Tries various methods of attack
- .. Gives up very easily
- .. Too quick and superficial
- .. Too slow and labored.
- .. Lacks any consistent method of attack

Vocabulary

ORAL VOCABULARY

FORM I

1 A head is part of a	coat	saw	man	box
2 Little means	funny	small	sick	yellow
3 An hour is an amount of	dirt	fun	water	time
4 To strike means to	hut	talk	eat	swim
5 A rock is a	tree	color	stone	house
6 The wave is on the	mouse	water	day	horse
7 Fierce means	tame	slow	wild	easy
8 Hush means be	sad	angry	quiet	brave
9 A robe is made of	iron	dirt	wood	cloth
10 To protest means to	agree	object	curse	kill
11 Slender means	dirty	slim	honest	fat
12 To overlook means to	miss	shoot	stretch	catch
13 To magnify is to make	sorry	smaller	waste	bigger
14 To precede is to go	down	before	under	fast
15 Sarcastic means	smearing	coughing	modern	deceptive
16 Previous means	after	now	never	before
17 To supplant is to	construct	replace	frighten	mortify
18 Gaudy means	certain	wealthy	beautiful	showy
19 A culprit is an	ostrich	offender	author	office
20 To appall means to	terrify	murder	reward	succumb
21 To flounder means to	giggle	fish	struggle	float
22 Municipal has to do with a	nation	president	city	state
23 Despotism is	liberty	tyranny	warfare	national
24 Intact means	unharmed	internal	interesting	tortured
25 Indigent means	ill	needy	insolent	colored
26 Deferential means	haughty	jolly	horrible	respectful
27 To perturb is to	wound	disturb	hearten	insult
28 To inhibit is to	restrain	tighten	charge	drink
29 Invidious means	complete	offensive	miraculous	compound
30 Polemic means a	dispute	disaster	problem	precedent

Score = Number Correct - 1/3 Number Wrong

Grade Score Rating

Directions for Using the Gates Reading Diagnostic Tests

Vocabulary

ORAL VOCABULARY

FORM II

1. A face is part of a	hat	hull	man	box
2. Big means	sick	large	red	sad
3. A horse is an	owl	uncle	amount	animal
4. To walk means to	move	talk	eat	swim
5. A story is something to	throw	burn	tell	dance
6. A storm means	night	rain	toys	fun
7. A flame is a	time	fruit	fire	tree
8. A flock is a	group	color	man	fight
9. A kettle is for the	field	stove	sky	ocean
10. Treason means	smartness	treachery	poison	wealth
11. A ruler could be a	fence	coat	time	lung
12. Expression means the way one	fights	looks	works	thinks
13. Stricken means to be	fine	hurt	pretty	false
14. To overflow means to run	away	about	fast	over
15. To exploit is to	cheat	give	hurry	swim
16. Lacquer is a kind of	fish	tree	paint	metal
17. To refute is to	insult	disprove	approach	endanger
18. To taunt is to	bargain	forgive	ridicule	sharpen
19. A turbine is part of a	flower	machine	building	stomach
20. Trivial means	worthy	proud	hungry	trifling
21. To incite is to	condone	argue	polish	rouse
22. To portend is to	divide	lend	bluff	foretell
23. Devoid means	critical	full of	angry	empty
24. Florid means	stingy	foreign	flowery	sickly
25. Decorous means	forlorn	insipid	dignified	treacherous
26. Insensate means	unfeeling	horrible	unconscious	poor
27. To mangle is to	trade	injure	foretell	create
28. Fortitude means	defense	plenty	courage	tall
29. Resonant means	resounding	expensive	cruel	uncertain
30. Opprobrium means	insolent	opposite	infamy	determination

Score = Number Correct \div 4 Number Wrong

Grade Score

Rating ..

Reversals—Phrase Perception

REVERSALS

FORM I

on	ma	bad	was	no	am	war	net	rat	now
raw	ton	saw	dab	won	pot	tar	saw	star	peek
nap	spot	dear	top	war	ma	won	team	pal	even

FORM II

no	war	rat	now	on	was	ma	tar	pat	dab
am	saw	tap	bad	net	raw	pot	team	spot	nap
pat	won	ton	pal	dear	top	star	lap	war	tap

Form I	Raw Score	Grade Score	Rating	Form II	Raw Score	Grade Score	Rating
1. Number of words wrong	1. Number of words wrong	.. .. .	.. .. .	.. .. .
2. Number of full reversals	2. Number of full reversals	.. .. .	.. .. .	.. .. .
3. Number of partial reversals	3. Number of partial reversals	.. .. .	.. .. .	.. .. .
4. Sum of 2 and 3	4. Sum of 2 and 3	.. .. .	.. .. .	.. .. .
5. Percentage which 4 is of 1	5. Percentage which 4 is of 1	.. .. .	.. .. .	.. .. .

PHRASE PERCEPTION

FORM I

a boy	the big ship
the dog	he came home
find me	it is mine
see it	a fine day
no talk	under the house
my toy	catch the train
make it	this is nice
one sled	when it rains
stop here	bring your books
come back	wait for a car
ride fast	give me my coat
my chair	go to the store
a little cat	park your car here

* 26 - Number Wrong . . . = Raw Score . . .
Grade Score . . . Rating . . .

FORM II

a man	the tall man
the cat	he ran away
run fast	it is good
eat it	a long time
no talk	under the table
my hat	wash your face
color it	that is new
one coat	what a clock
go away	find your books
take this	wear a new hat
come home	sing me a song
my train	see my best dress
a pretty doll	put your toys here

26 - Number Wrong . . . = Raw Score . . .
Grade Score . . . Rating . . .

Directions for Using the Gates Reading Diagnostic Tests

WORD PERCEPTION—FLASH PRESENTATION			
<i>FORM I</i>		<i>FORM II</i>	
so	we	it	by
as	go	us	or
the	not	dog	day
how	may	who	men
king	here	much	doll
grow	late	feed	hold
every	about	green	train
paper	blind	build	wagon
window	family	ending	temple
perhaps	plaster	cruel	torment
passenger	wander	avenue	respect
interest	chocolate	landscape	courage
dispute	portion	harmony	jealous
conductor	brightness	candidate	discontent
intelligent	construct	celebration	difficulty
position	profitable	comprehend	performance
irregular	schoolmaster	certificate	victorious
lamentation	community	reference	conversation
satisfactory	illustrious	familiar	acquaintance
superstition	affectionate	organization	musician
<i>Number Correct (from two columns) ..</i> <i>Grade Score Rating</i>		<i>Number Correct (from two columns)</i> <i>Grade Score Rating ..</i>	

Word Perception

UNTIMED WORD PRONUNCIATION TEST

Use column 1 or 2 and column 3. If a more reliable test is desired, all four columns should be used. Write the mispronunciations on this sheet.

FORM I

1	2	3	4
so	we	is	do
as	go	at	or
the	not	can	hen
how	may	son	net
king	here	ball	came
grow	late	east	year
every	about	broom	child
paper	blind	climb	point
window	family	lonely	scratch
perhaps	plaster	servant	frighten
passenger	wander	countor	shepherd
interest	chocolate	citizen	elegant
dispute	portion	mansion	brilliant
conductor	brightness	guardian	restaurant
intelligent	construct	protection	temperature
position	profitable	reverence	astonishment
irregular	schoolmaster	revolution	unnecessary
lamentation	community	intelligenco	national
satisfactory	illustrious	congratulate	preparation
superstition	affectionate	philosopher	treacherous

Number Correct. Grade Score Rating

CHECK LIST

- | | |
|--|---|
| Too quick and superficial response. | Lacks versatility; if first sounding or blending is wrong, does not work out others. |
| ... Too slow, labored and detailed study | ... Frequent confusion in order of word components, resulting in reversal errors, etc. |
| .. Gives up if first response is wrong. | .. Makes many errors on first part of word. |
| . Lacks any consistent method. | .. Makes many errors on middle part of word. |
| . Depends mainly on general appearance of word. | .. Makes many errors on ending of word. |
| .. Studies word form in detail but lacks phonetic attack. | . Makes errors in recognising letters. |
| ... Depends mainly on naming the letters (spelling method). | Seems not to be able to recognize and sound phonograms like <i>br, th</i> , etc., and syllables like <i>in, ter, ing, ab</i> , etc. |
| Depends mainly on sounding individual letters. | ... Seems to get lost in details of words, can't see the forest because of the trees. |
| Recognizes certain syllables, phonograms and letter sounds but does not blend well | |
| Seems to have an inadequate sense of sound values of letters, syllables, etc. | |

Directions for Using the Gates Reading Diagnostic Tests

Word Perception

UNTIMED WORD PRONUNCIATION TEST

Use column 1 or 2 and column 3. If a more reliable test is desired, all four columns should be used. Write the mispronunciations on this sheet.

FORM II

1	2	3	4
it	by	be	on
us	or	as	my
dog	day	run	get
who	men	ate	ill
much	doll	book	only
feed	hold	goes	word
green	train	other	floor
build	wagon	class	lonely
ending	temple	valley	summon
cruel	torment	fortune	muzzle
avenue	respect	department	spirit
landscape	courage	enormous	feature
harmony	jealous	revolt	innocent
candidate	discontent	testimony	population
celebration	difficulty	confusion	respectful
comprehend	performance	persecute	tributary
certificate	victorious	dignify	consequently
reference	conversation	inheritance	suspicion
familiar	acquaintance	mountainous	prosperous
organization	musician	discipline	perpetual

Number Correct Grade Score Rating ..

CHECK LIST

.. .. Too quick and superficial response	Lacks versatility; if first sounding or blending is wrong, does not work out others.
.. .. Too slow, labored and detailed study	Frequent confusion in order of word components, resulting in reversal errors, etc.
.. .. Gives up if first response is wrong	Makes many errors on first part of word
.. .. Lacks any consistent method.	Makes many errors on middle part of word.
.. .. Depends mainly on general appearance of word.	Makes many errors on ending of word.
.. .. Studies word form in detail but lacks phonetic attack.	Makes errors in recognizing letters
.. .. Depends mainly on naming the letters (spelling method).	Seems not to be able to recognize and sound phonograms like <i>br</i> , <i>th</i> , etc. and syllables like <i>in</i> , <i>ter</i> , <i>ing</i> , <i>ab</i> , etc.
.. .. Depends mainly on sounding individual letters	Seems to get lost in details of words, can't see the forest because of the trees
.. .. Recognizes certain syllables, phonograms, and letter sounds but does not blend well	
.. .. Seems to have an inadequate sense of sound values of letters, syllables, etc.	

Spelling—Visual Perception

SPELLING

Use the third and fourth columns of the test on page 9 for Form I and page 10 for Form II. If these columns were used in either of the two preceding tests, give one or more

other tests before giving the spelling tests. Write the misspellings in the spaces below. This will indicate number of misspellings. Subtract from 40 to get number correct.

FORM I

Number (in two columns) correct..... Grade Score.....
Rating.....

CHECK LIST

- Spells letter by letter—no syllabic divisions.
- Spells too hurriedly.
- Spells too slowly.
- Spells phonetically—apparently recalls appearance of word poorly.
- Lacks ability to spell phonetically—gives letters with incorrect sounds.
- Tends to omit parts of word.
- Tends to add letters and syllables.
- Tends to transpose letters and syllables.

FORM II

Number (in two columns) correct..... Grade Score.....
Rating.....

CHECK LIST

- Spells letter by letter—no syllabic divisions.
- Spells too hurriedly.
- Spells too slowly.
- Spells phonetically—apparently recalls appearance of word poorly.
- Lacks ability to spell phonetically—gives letters with incorrect sounds.
- Tends to omit parts of word.
- Tends to add letters and syllables.
- Tends to transpose letters and syllables.

SYLLABICATION

FORM I

inmo	ilry	enake	foter	divar	etfo	delow	elling
loterow	stadever	shoryold	indarill	urloate	adunick		
ryingad	surowar	hasbola	ayleawa	atalary	mlleahing		

Raw Score..... Grade Score..... Rating.....

FORM II

adon	olri	arock	laver	nllow	eled	lgast	lither
euplary	placorow	staryock	ickunell	irllate	lgarind		
lashory	wacolow	roleafo	ayterha	arknde	nllowther		

Raw Score..... Grade Score..... Rating.....

Directions for Using the Gates Reading Diagnostic Tests

Visual Perception

RECOGNITION OF SYLLABLES

FORM I

ark	ick	ill	eat	ake	ose	eeep	ine	ove	ight
ter	lea	ver	sta	hing	er	il	ir	un	ac
Raw Score ..		Grade Score		.Rating ..					

FORM II

ear	ing	ock	ell	ind	ugh	ate	ast	old	one
low	pla	row	ther	sho	ed	ic	ad	en	ar
Raw Score		Grade Score		.Rating ..					

RECOGNITION OF PHONOGRAMS

FORM I

la	ro	ne	su	ed	ha	co	ir	un	ow
st	al	tr	ch	cl	ea	oo	al	ou	el
Raw Score ..		Grade Score		.Rating ..					

FORM II

li	fo	mi	se	er	ca	ni	ul	en	ac
th	et	gr	sp	br	au	ee	ay	ie	al
Raw Score		Grade Score		Rating					

BLENDING LETTER SOUNDS

FORM I

k-o	n-a	i-m	e-t	d-u-r	r-c-k	f-o-d	p-i-m
u-l-k	q-o-b	p-e-x	s-u-g	y-i-l	c-a-m-y		
j-u-n-t	v-o-l-d	m-i-f-s	h-a-r-n	f-u-r-n	w-o-l-d		
Raw Score ,		Grade Score ,		.Rating .			

FORM II

t-a	m-u	e-m	i-k	b-o-f	a-n-k	f-u-b	p-e-z
s-l-t	q-i-s	g-e-x	y-o-g	h-i-l-d	c-o-r-y		
j-a-w-i	v-i-b-s	m-u-l-s	t-o-x-y-p	f-i-m-p	w-u-r-t		
Raw Score		Grade Score		.Rating			

Visual and Auditory Perception

GIVING LETTER SOUNDS

FORM I

u o y i e a s t c p x f d

b s r m l q j k w g h n v

Raw Score . . . Grade Score . . . Rating . . .

FORM II

u o y i e a s t c p x f d

b s r m l q j k w g h n v

Raw Score . . . Grade Score . . . Rating . . .

READING CAPITAL LETTERS

FORM I

A E I O U Y W R B K D M T

F X V C G H J N Z S Q L P

Number of Seconds . . . Grade Score . . . Rating . . .

Number of Errors . . . Grade Score . . . Rating . . .

FORM II

A E I O U Y W R B K D M T

F X V C G H J N Z S Q L P

Number of Seconds . . . Grade Score . . . Rating . . .

Number of Errors . . . Grade Score . . . Rating . . .

READING SMALL LETTERS

FORM I

e o a u i y w r b k d m t

f x v c g h j n z s q l p

Number of Seconds . . . Grade Score . . . Rating . . .

Number of Errors . . . Grade Score . . . Rating . . .

FORM II

e o a u i y w r b k d m t

f x v c g h j n z s q l p

Number of Seconds . . . Grade Score . . . Rating . . .

Number of Errors . . . Grade Score . . . Rating . . .

BLENDING LETTER SOUNDS

FORM I

m-a s-o a-m d-o u-s t-a-p p-e-n s-a-p f-r-y b-i-g a-n-d b-u-g

m-t-n-d b-a-r-k d-a-n-c-e b-i-g-g-e-r t-h-u-n-d-e-r d-a-n-c-e-i-n-g m-a-d-i-l-y p-l-a-n-t-i-n-g

Raw Score . . . Grade Score . . . Rating . . .

FORM II

b-y g-o a-n t-o 'u-p o-a-n m-e-n s-a-t f-l-y d-i-g e-n-d b-a-t

m-a-n-y h-a-r-d d-r-i-n-k s-i-n-g-e-r t-h-i-r-t-y d-a-r-l-i-n-g m-a-t-c-h-e-s c-h-a-m-p-i-o-n

Raw Score . . . Grade Score . . . Rating . . .

Directions for Using the Gates Reading Diagnostic Tests

Auditory Perception

GIVING LETTERS FOR SOUNDS

c or s is accepted for s in see
g or j is accepted for j in jet

c or k is accepted for k in key
a or o is accepted for o in odd

FORM I

A. y-yet w-we r-ray l-live n-no z-zebra m-me v-van g-get
d-do s-see j-jet b-be f-file k-key t-to p-pay h-ha
B. a-ah e-ear o-or a-ale e-ebb i-it o-odd a-at o-old u-up
C. th-thy ch-chew sh-she

Raw Score Grade Score Rating

FORM II

A. y-yet w-we r-ray l-live n-no z-zebra m-me v-van g-get
d-do s-see j-jet b-be f-file k-key t-to p-pay h-ha
B. a-ah e-ear o-or a-ale e-ebb i-it o-odd a-at o-old u-up
C. th-thy ch-chew sh-she

Raw Score Grade Score Rating

GIVING WORDS WITH STATED INITIAL SOUND

FORM I

c-can 1. 2. 3.
s-saw 1. 2. 3.
n-now 1. 2. 3.
t-tag 1. 2. 3.

Raw Score Grade Score Rating

FORM II

p-pet 1. 2. 3.
r-ran 1. 2. 3.
m-mat 1. 2. 3.
h-hot 1. 2. 3.

Raw Score Grade Score Rating

GIVING WORDS WITH STATED FINAL SOUND

FORM I

an-can 1. 2. 3.
eep-keep 1. 2. 3.
ay-pay 1. 2. 3.
ig-pig 1. 2. 3.

Raw Score Grade Score Rating

FORM II

in-pin 1. 2. 3.
ack-black 1. 2. 3.
oy-boy 1. 2. 3.
en-pen 1. 2. 3.

Raw Score Grade Score Rating

Tests of vision.

Tests of hearing.

Observations or tests of speech.

Eye movements, use of finger; lip movements; head movements, etc., in silent reading.

Evidence of emotional tension, fear, irritation, lack of confidence, etc.

Evidence concerning special interests and distastes.

Directions for Using the Gates Reading Diagnostic Tests

Influence of home, parents, and other out-of school factors.

School history

Summary of diagnosis and recommendations.

has missed six consecutive words. If a child is having scattered successes, the examiner should continue to the end of the test. Guessing is encouraged, as is indicated by the Manual of Directions.

Recording and Scoring. Underline the response the child makes. If he changes his mind, be sure to cross out the first response. If he refuses to answer, draw a line through the entire exercise. If the test is terminated at some point before all thirty words have been given, draw a line under the last row of words given. The raw score is *the number correct minus one-third the number of errors*. Omissions, or exercises to which the child refused to give any response, are not counted at all.

Table VIII provides a grade score for each raw score on the Oral Vocabulary Test. The grade score may be converted to an age score by means of Table II. The age score may be compared with the child's actual age in order to discover whether his performance is equal to that of the average child of that age. When the Oral Vocabulary Test is used as a substitute for, or in addition to, the score on the intelligence test, it is usually more convenient to use the grade score in which the other diagnostic test results are expressed.

Reversals Test

Description. This test, with two exceptions, is made up of words in common use which form another real word when the letters are read in reverse order. The exceptions are "oven," which, when read by children subject to reversals, is sometimes called "never," and "dear." The purpose of this test is to ascertain the child's tendency to reverse words or to mispronounce them as forms made up of the same or similar letters, that is, to make errors falling into the categories *total* and *partial reversals*.

The words in the test are arranged in three horizontal lines of 10 each, and the child is asked to read them from his test booklet, in a left-to-right direction. Spontaneous corrections are permissible, but the examiner gives no second opportunity to try any words such as is given in some of the tests that follow. On the other hand, if the child hesitates, he should be encouraged to try any approaches he likes, and response should be secured for each word if possible. If, instead of pronouncing a word, the child attempts a phonetic translation, he should be encouraged until he says a word. Form I of this test appears on page 592.

Recording and Scoring. If a child reads a word correctly, make no mark in the Record Booklet; if he reads it incorrectly, write his response

Directions for Using the Gates Reading Diagnostic Tests

above the word. If he corrects himself, write the first response above the word, and place a "c" over it to indicate that it was corrected. If he refuses to try a word, draw a line through it.

Five lines are provided beneath the test in the Record Booklet for recording the scores on this test. On these lines are to be recorded (*a*) the number of errors, (*b*) the number of full reversals, (*c*) the number of partial reversals, (*e*) the sum of (*b*) and (*c*), and finally the percentage of the total contributed by reversal errors (the percentage which *e* is of *a*). The full and partial reversals are to be determined by the criteria used in the Oral Reading Test. The norms for the raw scores for Number of Words Wrong, and Percentage of Reversals, are given in Tables ix and x in the Manual of Directions.

Interpretation of the Scores for the Reversals Test. If a child's grade score on this test, obtained from his score on the total number of errors, is at about the same level as his grade score on the Percentage of Reversals, he is making about the average number of reversals for one at his level of word-recognition ability. If the grade score for Percentage of Reversals is *higher* than the grade score for the number of words wrong, the child is less subject to reversal errors than the average. If the grade score for Percentage of Reversals is *lower* than the grade score for number of words wrong, he is more subject to reversal errors than the average child, and we must look further to find the causes. We may also compare the proportion of reversal errors (whether average, above or below) with the proportion of reversal errors shown on the Oral Reading Test, to see whether the tendency to reversals is consistently present. We shall need to keep these results in mind as we observe the child's word-analysis techniques or the lack of them. The grade scores of the Reversal Tests should also be compared with the child's average reading grade on silent reading tests, if such scores are available. Further details for diagnosing the tendency to make reversal errors are given in Chap. 10.

Phrase Perception Test

Description and Administration. This test makes use of the tachistoscopic technique in a very simple way. For each of the two forms, twenty-six two-and-three-word phrases are arranged in two vertical columns in the child's test booklet. The examiner uses a cardboard rectangle with a "window," provided with the test outfit, which is just large enough to expose one phrase at a time! The Phrase Perception page is placed before

the child, concealed by a sheet of paper, and he is told that he is going to be shown a couple of words, sometimes more than two, through the window in the card for a very short time. When his attention is focused on the place where the first phrase will appear, the examiner says, "Ready," moves the card so that the first phrase in the left-hand column is exposed for one-half second, and slides the "window" card so that the phrase is covered again. The examiner then says, "Next," moves the card so that the second phrase is exposed for one-half second, and again covers it. After each exposure any errors in reading are to be recorded on the list in the Pupil's Record Booklet. This test is reproduced on page 590.

The technique by which this test is administered requires practice. The examiner should learn to use the card with the left hand, in order that the right may be free for recording, or the child will find the test long and irksome because of the delays between exposures. The examiner may sit either beside or opposite the child, using an addition on the tachistoscope card which will conceal the lower lines on the page. The card is moved down the page by the examiner's left hand as she records with the right. A "hopping" movement of the card has been found most satisfactory.

Making an exposure of one-half second requires practice, since there is not sufficient time for the use of a stop watch or other checking device. The examiner should practice counting "one-two" until both words can be said in exactly one second. Then the movement of the card should be synchronized with the count, until a phrase is exposed on "one," and covered on "two." A half-second exposure is very short, and the examiner will find that it is about as fast as the card can be manipulated.

The tachistoscope card is moved down the left-hand, then down the right-hand column, as described. Only one trial on each phrase is permitted.

Recording. Draw a line in the Record Booklet through each phrase failed. If a child gets part of a phrase, indicate the part with a check mark. If the examiner can write rapidly enough he may be able to record the child's exact words above the phrases when he reads them incorrectly. If such errors can be recorded, they are sometimes illuminating.

Scoring. The score is 26 minus the total number of errors. An item must be correct in its entirety in order to receive credit. If the complete list is not given, use the number correct for the score. The grade score is obtained from Table xi.

Interpretation. The grade score obtained by the subject on this test should be compared with his average reading grade, and with scores of

Directions for Using the Gates Reading Diagnostic Tests

speed for silent reading, as well as with scores on Word Perception and Analysis (flash presentation) and Word Perception and Analysis (untimed) which will be described below. An important question to ask is "Can this child read similar material if given more time, or is he unable to read it at all?" His methods of attack on words will give the examiner clues to the causes of his behavior in this test. Further details concerning the interpretation of the results of this test are given in Chap. 11.

Word Perception and Analysis Tests

The materials used by the child in these tests are printed on page 5 of the test materials cards. The page bears the heading Word Recognition, Pronunciation, Analysis and Spelling. See page 591.

Flash Presentation. The Word Perception and Analysis (flash presentation) Test uses a tachistoscopic technique, like the Phrase Perception Test. A card with a smaller "window" is provided, and the examiner makes it "hop" down the page just as described earlier. The exposure of each word is one-half second, and the order of presentation is down the first column, then down the second. Only one trial is allowed.

The examiner records incorrect responses by writing them above the items in the Pupil's Record Booklet. Items receiving correct responses should remain unmarked. The words which the child was unable to read should be crossed out.

The raw score is the number correct, and the grade scores are obtained from Table XII. The incorrect responses should be scrutinized for the presence of reversals, errors on endings, and so on. A space has been left below the test material in the Record Booklet for the examiner's comments.

Untimed Presentation. For this test two or four columns of the same materials (page 5 of the pupil's cards) is used. If only two columns are used, the first or the second, and the third should be used, but since the use of all four columns furnishes a more reliable score and takes only a little more time, the use of all four is recommended.

Ask the child to read the words across the page. Tell him you would like him to read some words for you. If he fails in reading a word, ask him to try it again. Observe his approach to unknown words. As the words become more difficult encourage him to continue trying. When ten successive words have been missed, the test should be terminated.

In recording errors, the examiner makes no mark on words correctly pronounced at the first attempt. If the child fails on the first trial, his

mispronunciation should be recorded above the word in the Pupils Record Booklet. If he fails on the second trial, a line is drawn through the word. If he succeeds on the second trial, the word is left unmarked, with the mispronunciation of the first trial written above it. The point at which the test ended should be clearly indicated by a line drawn across the page.

If all four columns were read, the score is 1 point for each word correctly pronounced at the first trial, $\frac{1}{2}$ point for each word correctly pronounced at the second trial. The method of recording suggested makes this calculation very simple. *If only two columns were read, the total number of points earned should be multiplied by 2 to obtain the raw score.* If the total score contains a half-point, for example, $12\frac{1}{2}$, the child should be credited with the full point for this half, that is, he should receive a raw score of 13 and be credited with the equivalent grade score for 13. This rule applies to all tests in which two trials are given. Grade scores are obtained from Table XIII.

The examiner is provided with a check list for this test, which should be marked at once in order to preserve the details of the child's behavior. Among the items on this check list are: gives up if first response is wrong; depends mainly on naming the letters (spelling method), lacks any consistent method; too quick and superficial response.

Spelling Test

The materials used for the spelling test are the third and fourth columns of either form of the Word Recognition Test materials. The words are arranged in order of increasing difficulty. The test is an oral one, and the child has no material before him. The examiner reads each word to him and he spells it aloud. The words are read horizontally by the examiner, first the word at the top of the third column, then the word at the top of the fourth, and so on. It is permissible to use sentences to illustrate the word intended to be spelled. If such sentences are used, the method of giving the word should be as follows:

“is The cat *is* in the room. is”

The child should be given only one trial at spelling any word. However, if he corrects himself spontaneously, the correction may be accepted.

If the columns in this test have already been used in either of the Word Perception and Analysis Tests, allow several tests to intervene before giving the Spelling Test.

For recording and scoring, the examiner will find a blank space on

Directions for Using the Gates Reading Diagnostic Tests

page 11 of the Pupil's Record Booklet, in which misspellings are to be recorded. The method of recording should indicate how the child attacked the words. Letter by letter spelling may be recorded: *c-a-n*. Grouping according to a knowledge of phonetic elements may be recorded: *c-an*. In longer words, inadequate syllabication or lack of it may be recorded in the same way: *frigten*, *peb-aps*.

The score is obtained by counting the number of misspelled words (those recorded by the examiner) and subtracting it from 40 to obtain the number correct. If all forty words are not given, the score is the number correct. The grade scores are obtained from Table xiv.

The check list for this test should be marked immediately. Among the items are: spells letter by letter—no syllabic divisions; spells too hurriedly; tends to transpose letters and syllables; tends to omit parts of words.

The Visual Perception Tests

The tests described up to this point have dealt with connected reading materials or with words as wholes, and a survey of the child's achievements in these two reading areas should be made at this point. The examiner has obtained a grade score for the pupil's oral reading, for his oral vocabulary, and for his oral spelling. The examiner obtained evidence of any tendency to read from right to left from the performance on the Reversals Test, and an analysis of errors on the Oral Reading Test. He has also been making tentative judgments about the pupil's knowledge of letter and phonogram sounds as a result of observation of the pupil's approach to unfamiliar words in the three tests. The examiner has a grade score for the pupil's ability to recognize easy words and phrases at a glance from the Phrase Perception and Word Perception—Flash Presentation Tests. He can compare this grade score with achievement in reading material of similar nature and difficulty without timing. Performance on the Spelling Test contributes to our knowledge of what use the subject can make of phonetic techniques.

Having reviewed this information, we desire to know what specific resources the child possesses in the way of visual and phonetic techniques, in order to support the conclusions we are forming about the nature of his reading difficulty. The Visual Perception Techniques Tests provide a detailed analysis of certain aspects of these skills. There are seven subtests contributing, and they are presented in order of difficulty, with the most difficult first, so that when the examiner finds an area in which the child

seems confident and relatively proficient, he need not continue with the easier tests. A child who *blends* letter sounds successfully, for example, need not be tested on his knowledge of *giving* letter sounds. Frequently, however, a weakness in phonetic techniques is found to be due to uncertainty about the single letter sounds, or an inability to distinguish some letters from others. The examiner must be prepared for either eventuality, that is, giving only a few of the Visual Perception Tests, or giving all seven. Further discussions of the uses and interpretation of these tests are given in Chaps. 8 and 9. These tests are shown on pages 591f.

The subtests, in order of presentation, are

1. Syllabication
2. Recognition of syllables
3. Recognition of phonograms
4. Blending letter sounds
5. Giving letter sounds
6. Reading capital letters
7. Reading small letters

The Syllabication Test. The material for this test is twenty nonsense words made up of familiar syllables. The words are read by the child from page 6 of his booklet. The directions are as follows:

Give the child his booklet, opened at page 6, and point to the Syllabication section. Say, "Pronounce these words." If he protests that they are not real words, say: "They aren't real words. They are make-believe words, but they sound a little like real words. Tell me how you think they ought to sound." If the child misses on the first trial, ask him to try the word again. Since this is a test of ability to combine syllables into words, encourage the child to give a continuous word. Pronunciation of the separate syllables with no attempt to join them together is not acceptable. As the words are unfamiliar, slight hesitation is acceptable if there is real continuity. The examiner should note that there is more than one reasonable phonetic pronunciation of most of these nonsense words.

In recording errors, if the nonsense word is given an acceptable pronunciation, make no mark in the record booklet. If the response is incorrect on the first trial, write the child's pronunciation above the word; if it is incorrect on the second trial, cross out the word. If a word is refused entirely, cross it out. Indicate by the method of recording the child's attack on the word, as in the Spelling Test.

One point is given for each response correct on the first trial, $\frac{1}{2}$ point for each response correct on the second trial. The raw score is the total

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number of points earned, and Table xv gives equivalent grade scores.

Recognition of Syllables and Recognition of Phonograms. Inasmuch as these two tests are administered and scored by the same method, they are described together.

On page 6 of the child's booklet are printed twenty two-, three- and four-letter syllables, under the heading "Recognition of Syllables," and twenty two-letter combinations under the heading "Recognition of Phonograms." Before these are presented to the child, he is given a preliminary experience with the technique to be used in the test, as follows:

The syllable *-est* is printed on a card. The child is shown the card and asked to pronounce it. The examiner may tell him that it is not a real word, but it sounds like one. Either pronunciation, as in *best* or as in *east* is acceptable.

If the child cannot give the pronunciation at once, ask him to try to pronounce the "word." If he breaks it up into individual sounds, such as *es-t*, pronounce the syllable as a whole for him, then say, "Let's try another," and print *art* on the other side of the card. If the child cannot read this, pronounce it for him, and go on to the syllables in the test. Encourage all his attempts, however poor. It is not unusual for a child to miss several items before he gets the right idea. It is important, therefore, to keep him trying until it is plain that he can do nothing with the test.

Two trials should be given for each syllable and each phonogram. If the first is not acceptable, the examiner may make an encouraging, sincere comment like "That was a fine try—now try once more to see if you can read it perfectly." Record the responses as follows: make no mark at all if the response is correct at the first trial, write the first incorrect response above the syllable or phonogram; at the second incorrect response draw a line through the item. Give 1 point for a word correct on the first trial, $\frac{1}{2}$ point for a word correct on the second trial. Since this is a test to discover whether the child can recognize and pronounce common syllables or phonograms, no credit should be given for a syllable or phonogram pronounced after blending it letter by letter. Add all the credits to get the raw scores and obtain the equivalent grade scores from Tables xvi and xvii.

In the case of many of these syllables the examiner will find that several correct responses are possible. In Form 1, *ine* might be read as in *mine* or as in *machine*; *ver* might be read as in *very* or as in *never*; *ir* might be read as in *fir* or as in *irregular*, and so on. The acceptable sounds for each syllable are those in the accompanying words:

Form 1

ark	dark	ver . . .	never
ick	sick		(very)
ill	will	sta .. .	stand
eat .. .	seat		stay
	great	hing ..	thing
ake	make	er ...	after
ose . . .	rose		here
leep .. .	sleep		very
ine .. .	mine	il . . .	silk
	engine		while
	machine	ir . . .	fire
ove . . .	over		girl
	cover	un . . .	run
ight ...	night		united
ter	after	ac . . .	back
lea	lean		face
	leather		

Form 2

ear	hear	pla	place
	heard		plane
	bear	row	grow
ing	sing		growl
ock	rock	ther	mother
ell	bell	sho	show
ind	wind		shot
	find	ed . . .	tried
ugh . . .	brought		bed
	(rough)	ic . . .	sick
ate . . .	gate		office
	climate	ad	bad
ast	fast		made
old	cold	en	send
one	alone		even
	done	ar	car
low	blow		carry
	flower		around

Following are the acceptable sounds for each *phonogram*.

Form 1

la	glad	un.....	run
	late		united
	collar		pure
ro	from	ow.....	grow
	road		how
	room	st	best
	around	al	gallon
ne . . .	done		alter
	never		alone
	dinner		walk
	nearly	tr . . .	tree
su	sun	ch .. .	chair
	measure		ache
	sugar		machine
ed	tried	cl	cloth
	bed	ea ...	dear
ha	had		bread
	hate	oo ...	school
	hardly		book
	hall	ai . . .	rain
co.....	copy		chair
	come	ou .. .	our
	cold		country
	corn		you
ir	fire		soul
	girl	cl	felt

Form 2

li	little	il.....	silk
	like		while
	believe	en.....	send
fo	for		even
	folk	ac.....	back
	fox		face
mi	coming	th	the
	mine		isthmus
se	send	et	get
	rose	gr	grass
	house	sp	spell
	seen	br	brown
er	after	au	author
	here	ee	feed
	very	ay	way
ca	can	ie	stories
	came		cried
	car		friend
	call	al	gallon
ni	morning		alter
	night		alone
	opinion		walk

Directions for Using the Gates Reading Diagnostic Tests

Blending Letter Sounds. This test is designed to ascertain whether the pupil can blend the letter sounds and arrive at a reasonable total—an integrated sound. As it is a test of ability to blend, not a test of knowledge of letter sounds, the examiner may always tell the child the sound of a letter if he does not know it.

Show the pupil a separate small card on which is printed "f-o." Say to him: "I should like you to give me the sound of this letter (point to the 'f' and then the sound of this letter—point to the 'o'). Then put them together into a word. It won't be a real word but it will sound like one."

If the child does the exercise correctly, go on to the test, using the same procedure. If he is unsuccessful with the sample exercise, say, "I'll help you with this one. This letter says 'f' (giving the sound of the letter) and this one says 'o.' Now, when we put them together, we get f-o, fo,—f-o, fo. You do it." After the child has followed the pattern correctly, say, "That's fine. Now let's try this one." (Show him the first item at the top of page 7 in his materials booklet.) "Give me the sound of *this* letter (point to the first letter) and then the sound of *this* letter (point to the second letter), then put them together into a word." If he still cannot follow the pattern, illustrate again, and continue to illustrate with the successive test items until it is certain that he cannot do it for himself.

If the child is incorrect on the first trial, give him a second trial. Recording the responses is carried on in the same way as for the tests immediately preceding, that is, the first incorrect response is written phonetically above the item; the second incorrect response is indicated by a line through the item.

A correct response receives 1 point if made at the first trial, $\frac{1}{2}$ point at the second trial. These trials are in addition to certain preliminary studies that some children may make. For example, a child, on looking at *f-o-d*, may first name the letters in a whisper, or sound them to himself one by one, or look at them a few seconds before attempting to blend or combine them. These preliminary activities are not counted as trials. The trial is the effort to produce the whole, to unify or blend the sounds together, or to say the whole as a single word. The child should be induced to make two attempts to produce a word.

Any blended sound that is a reasonable translation of the letters may be credited as a correct response. For example, in the first item of Form 1, *k-o*, the child may give a "word" beginning with the "k" sound, and ending with any reasonable sound of *o*, such as the *o* sounds found in *rose*, *hot*, *cork*. The problem in this test is not to determine how exactly the

pupil knows each of the individual letter sounds, but rather whether he can combine or blend the sounds. He should be given credit even if the sounds, especially for some of the vowels, are unusual or even incorrect, or even if he gives the wrong sound for a letter. For example, if the child confuses *d* with *b* in *f-o-d*, and correctly blends the letters, saying *fob*, he is credited with a correct response, since, as was mentioned above, the purpose of this test is to see whether the child can *blend* letter sounds. The following test, *Giving Letter Sounds*, canvasses his ability to give the correct sound or sounds for each letter.

Table xviii contains equivalent grade scores for the raw scores. If a child receives a perfect score on the test, or makes one or two errors, the examiner must make the decision whether further testing on letter sounds is necessary. If a pupil mistakes one letter for another, as *p* for *q*, *v* for *z*, in this test, the need to test his ability to recognize and sound letters is obvious. If he seems able to blend letters but seems uncertain about the sounds of specific letters, then further testing is indicated. Since it would be difficult for the examiner to find time during the administration of the test to make notes of the child's need for prompting, brief notes in the margin, made as soon as it is concluded, are advisable. Any letters on which the child had to be prompted, even when the final response was correct, should be noted.

Giving Letter Sounds. The purpose of this test, as contrasted with the blending test just described, is to canvass specifically the child's knowledge of letter sounds. The materials are found on page 7 of the test booklet, and a practice exercise is given with the first item. The examiner points to this item on the page and indicates the first letter, saying, "I want you to give me the sound of this letter." (In the primary grades it is sometimes clearer to the child if the examiner says, "Tell me what this letter says.") If the child has difficulty with the vowels with which the test begins, and seems to be giving their names, not their sounds, the examiner prints the letter *s* on a card and shows it to the child, with the request: "Tell me what this one says." If the child insists on giving the name of the letter, the examiner replies, "Yes, it is called 'es,' but it *says* s-s-s-s. You try it, s-s-s-s." When the child has repeated the sound, the examiner proceeds with the letters in the test material.

In this test, *only one trial* for each letter is given after the examiner is sure that the child understands what he is to do. His actual responses should be recorded phonetically, even when they are correct, if any alternative correct response is possible, that is, in giving vowel sounds or the sounds for *c* and *g*. A child who gives the long (name) sounds for all

Directions for Using the Gates Reading Diagnostic Tests

the vowels and/or the less usual sounds of *g* and *c* should complete his test in the usual way. Then the examiner should return to the vowels and ask him if he knows any other sounds for them beside those he gave first, in order to make sure that he is acquainted with the more common sounds. The name sounds of the vowels are, of course, correct and should be credited. A child might conceivably receive a perfect score without knowing the alternate vowel sounds, and it is a good idea to repeat the test to find out how many different sounds he can give.

Reading Capital Letters; Reading Small Letters. These two tests are administered in the same manner, and will be described together. The child's material is on page 7 of this booklet, he is shown it, and asked, "Tell me the names of these letters (or 'Read these letters'). Do it fast, but do it right." If he hesitates for five seconds over a letter, the examiner tells him its name. Only one trial is given for any letter.

For these two tests there are speed norms as well as accuracy norms, and the examiner records both the *errors* and the *time* in seconds which the child uses in reading the twenty-six letters. The timing may be done with a stop watch or with a sweep second hand. All the responses not correct should be recorded, and the letters refused (supplied by the examiner) should be crossed out. The raw scores are the *number correct* (Accuracy) and the *time in seconds* (Speed). Tables xx and xxi provide the grade scores for Reading Capital Letters, Tables xxii and xxiii for Reading Lower-Case Letters.

The highest score, PF, indicates that we should expect the average child in Grade 2.5 to read the capital letters without errors, and the average child in Grade 3.0 to read the small letters correctly. The speed of reading continues to increase for another grade only. The average child in Grade 4.0 will be able to read the letters on either test about as quickly as an adult.

The number of seconds required to read the letters is an indication of familiarity with them. One child may be able, with great effort, to recognize all the letters, and still be too slow to use letter-naming effectively as an aid to recognition of words. Another child may make some of the more common errors, like confusion of *q* and *p*, *d* and *b*, and know all the others very well indeed. After the test has been given, it may be repeated informally without the speed element to determine what letters are not well known, for young children are subject to slips in naming the letters and to lucky guesses in cases of letters like *p* and *q* that are frequently confused.

Tests of Auditory Techniques

The four tests in this series,

1. Blending Letter Sounds
2. Giving Letters for Sounds
3. Giving Words—Initial Sounds
4. Giving Words—Final Sounds

are designed to evaluate the child's experience with letter sounds and his aptitude for learning by a phonetic approach. Most children "pick up" the abilities measured by these tests in their play and in miscellaneous experiences outside of school as well as in "ear training" and oral reading in the classroom. Intelligence plays a part in learning of this kind because rhyming and giving similar beginning and ending sounds require some ability to analyze and to generalize on the basis of the analysis. The child who has had an average amount of opportunity, experience, and training will attain grade (or age) scores on these tests rather close to his mental grade (or age). If his experiences have been less rich than the average, his scores on these tests will usually be less than the expectation unless his intelligence and aptitude are superior. In judging aptitude the influence of each child's home background and the amount and length of his reading training must be taken into consideration. For example, a child from an orphanage has fewer opportunities to be with adults; he has been taught fewer nursery rhymes and jingles and his speaking vocabulary is likely to be smaller than that of a child from his own home.

It is advisable, therefore, to use for comparison with the scores obtained on these tests both the actual grade and the mental grade. If a child's scores have a rating of *low* in comparison with his actual grade placement, but are about equivalent to his mental grade, he is showing about as much aptitude for phonetic analysis as can be expected of him under average circumstances. He may profit from training of superior quality and quantity. If his score is *low* in comparison with his mental grade, there is reason to believe that he can profit readily from remedial work for the purpose of increasing his awareness of letter sounds in words, unless a physical handicap—poor hearing—is the cause of his poor performance. The materials used in these tests appear on page 611.

In the four tests of this section there is nothing for the child to read, and his booklet of materials should be removed.

Directions for Using the Gates Reading Diagnostic Tests

Blending Letter Sounds. In this test the child listens to letter sounds made by the examiner, and is asked to blend them into words. The sounds in the word *by* are used by the examiner for demonstration before the test begins, in the following manner.

"I am going to sound some words for you. I will give the sounds in the word slowly and then I want you to tell me what word it is. The first word sounds like this—'b (sound only)—y' (long sound of y, equivalent to long i)." The sounds are given clearly at the rate of one sound per second. This will give about one-quarter second intervals between the sounds. If the child's first response is wrong, he is to be given a second trial.

There are twenty items, ranging from two-letter word combinations at the beginning of the test, through three- and four-letter words in each of which each letter-sound is presented separately, to words of two syllables in each of which several sounds are combined. The way in which the words are to be enunciated by the examiner is indicated by hyphens between letters or syllables, for example, *d-o*, *th-un-d-er*.

Incorrect responses are recorded in the usual way, by phonetic transcription above the item for the first trial, by crossing out the word on the second trial. One point of credit is given for each word synthesized correctly the first time, $\frac{1}{2}$ point for a correct response on the second trial. Equivalent grade scores are given in Table xxiv.

The child's grade score on this test may profitably be compared with his score obtained on the Blending Letter Sounds in the Visual Techniques part of the Diagnostic Test. This test canvasses a less complex skill than blending from a visual stimulus, for many young children as yet uninstructed in reading are able to give correct responses to some of the test items. A child who obtains better scores on this test than on the Visual Perception Blending test has not yet become as proficient in translating letters into sounds as may be possible for him. Characteristic errors may suggest poor hearing and should lead to further testing of hearing acuity.

Giving Letters for Sounds. This test is designed to tell whether the pupil can name the letter which properly represents a given sound as determined by conventions in the language. Here, as in the Pupils Record Booklet, the examiner is reminded that in English a number of sounds may be represented by more than one letter. In this test

c or *s* is accepted for *s* in *see*
g or *j* is accepted for *j* in *jet*
c or *k* is accepted for *k* in *key*
a or *o* is accepted for *o* in *odd*

The test is made up of three sections, the first containing eighteen items in which the child is asked to name the letter for a consonant sound made by the examiner, the second containing ten items in which the child is asked to name the letter for a vowel sound, and the third containing three items in each of which the child is asked to tell the letters making up the sounds of the phonograms *th*, *ch*, and *sh*.

Before giving the first and second parts of the test, the examiner says, "I am going to give you a sound and I want you to tell me what letter stands for (or makes) that sound. The first sound is 'a' (pronounced by the examiner as in *ate*). What letter makes that sound?" When giving the third part of the test, the examiner says, "What two letters sound like *sh* (giving the sound)?" and repeats the question for each item.

In the Pupil's Record Booklet (in which the examiner records responses) each letter which represents a sound to be made for the child is followed by a word which contains that sound. These are not to be read to the child—they are for the information of the examiner only.

Two trials are given for each sound. Errors are recorded in the usual way, and 1 point or $\frac{1}{2}$ point of credit is allowed according to whether the response was correct on the first or on the second trial. Equivalent grade scores are given in Table xxv.

The score obtained by a child on this test should be compared with his score on Giving Letter Sounds in the Visual Perception Techniques section, and with his score on the Spelling Test, as well as with the other auditory tests. Characteristic errors may again suggest poor hearing.

Giving Words with Stated Initial Sounds; Giving Words with Stated Final Sounds. These skills too are related to spelling, and to the level of ability at which the child can utilize phonetic techniques. A child who has not yet developed the kind of awareness of sounds in words which enables him to think without much effort of words beginning with the same sound as a sample word will be unable to grasp what is expected of him when the use of an initial letter is being demonstrated as a clue in reading. Similarly, a child who has not become conscious of rhyme in word sounds will not be able to make use of phonetic techniques which employ final syllables or "families" as clues.

Giving Words with Stated Initial Sounds. The examiner gives the directions: "I am going to give a word. Listen carefully to the first sound of the word and then tell me some other words that begin with the same sound. I'll do it with one word to show you what I mean. The word is 'men.' The first sound of 'men' is 'm' (make the sound). Some other words

Directions for Using the Gates Reading Diagnostic Tests

that begin with 'm' are 'mat,' 'more,' 'my.' Now you do *this* word. The word is *can*. The first sound is 'c' (give the hard sound). You tell me some other words that *begin* with 'c' (give only the sound)." In this test, a response is scored as correct if the sound is right irrespective of the spelling. For example, *kind* or *Kate* is a correct response since the first sound is the same as the *c* sound in *can*.

If the child fails the second word, the examiner tries the third, and continues until three responses for each word have been obtained. In this test it is very easy to confirm a wrong kind of response by giving the child praise or encouragement if he is wrong. Comments should be confined as far as possible to the actual directions of the test.

Words given by the child are recorded in the spaces in the Record Booklet. The raw score is the total number of words correct, and equivalent grade scores may be obtained from Table xxvi.

Giving Words with Stated Final Sounds. The examiner's directions to the child are: "Now I am going to tell you a word. You listen carefully to the last sound of the word and then tell me some other words that *end* with the same sound. I'll do one to show you what I mean. The word is *pin*. The last sound of 'pin' is 'in.' Some other words that end with 'in' are 'thin,' 'tin,' 'win.' Now you take the word *can*. The last sound of 'can' is 'an.' Tell me some words that rhyme with 'can,' some words that end with 'an' (give the sound, not the letters)." The instructions may be repeated if necessary, since it is desirable to secure three rhyming responses for each stimulus word.

Recording and scoring are done in the same manner as for *Giving Words with Stated Initial Sounds*. The table of grade-score equivalents is xxvii.

Part II. Norms for the Gates Diagnostic Tests

Part II consists of the tables of Norms for the Gates Diagnostic Tests. The uses of these tables are explained in Part I above.

TABLE I TABLE FOR RATING THE DEGREE OF RETARDATION REPRESENTED BY A PUPIL'S GRADE SCORE

1 ACTUAL GRADE POSITION	2 RATING LOW	3 RATING VERY LOW	1 ACTUAL GRADE POSITION	2 RATING LOW	3 RATING VERY LOW
2.0	1.5	1.3	3.3	2.4	2.0
2.1	1.6	1.4	3.4	2.5	2.1
2.2	1.7	1.4	3.5	2.6	2.1
2.3	1.7	1.4	3.6	2.7	2.2
2.4	1.8	1.4	3.7	2.8	2.2
2.5	1.8	1.5	3.8	2.9	2.3
2.6	1.9	1.5	3.9	2.9	2.4
2.7	2.0	1.6	4.0	3.0	2.5
2.8	2.1	1.7	4.5	3.3	2.8
2.9	2.2	1.8	5.0	3.5	3.2
3.0	2.2	1.8	5.5	4.0	3.5
3.1	2.3	1.9	6.0	4.5	4.0
3.2	2.3	1.9			

Norms for the Gates Diagnostic Tests

TABLE II TABLE FOR TRANSLATING AGE SCORES INTO GRADE SCORES OR GRADE SCORES INTO AGE SCORES *

AGE	GRADE	AGE	GRADE	AGE	GRADE	AGE	GRADE	AGE	GRADE
6-5	1.2	8-10	3.4	11-5	5.6	13-7	7.8	15-10	10.0
6-6	1.3	9-0	3.5	11-6	5.7	13-8	7.9	15-11	10.1
6-7	1.4	9-2	3.6	11-7	5.8	13-9	8.0	16-0	10.2
6-8	1.5	9-3	3.7	11-8	5.9	13-10	8.1	16-1	10.3
6-9	1.6	9-4	3.8	11-10	6.0	14-0	8.2	16-3	10.4
6-11	1.7	9-6	3.9	11-11	6.1	14-1	8.3	16-4	10.5
7-1	1.8	9-8	4.0	12-0	6.2	14-2	8.4	16-6	10.6
7-2	1.9	9-10	4.1	12-1	6.3	14-3	8.5	16-7	10.7
7-4	2.0	9-11	4.2	12-2	6.4	14-4	8.6	16-8	10.8
7-5	2.1	10-0	4.3	12-3	6.5	14-5	8.7	16-10	10.9
7-6	2.2	10-1	4.4	12-4	6.6	14-7	8.8	16-11	11.0
7-7	2.3	10-3	4.5	12-5	6.7	14-8	8.9	17-0	11.1
7-8	2.4	10-4	4.6	12-6	6.8	14-9	9.0	17-1	11.2
7-10	2.5	10-5	4.7	12-7	6.9	14-10	9.1	17-2	11.3
8-0	2.6	10-6	4.8	12-9	7.0	15-0	9.2	17-4	11.4
8-2	2.7	10-8	4.9	12-10	7.1	15-1	9.3	17-5	11.5
8-3	2.8	10-10	5.0	13-0	7.2	15-2	9.4	17-6	11.6
8-5	2.9	11-0	5.1	13-1	7.3	15-4	9.5	17-8	11.7
8-6	3.0	11-1	5.2	13-2	7.4	15-5	9.6	17-9	11.8
8-7	3.1	11-2	5.3	13-3	7.5	15-6	9.7	17-10	11.9
8-8	3.2	11-3	5.4	13-4	7.6	15-7	9.8	18-0	12.0
8-9	3.3	11-4	5.5	13-5	7.7	15-8	9.9		

* The first column gives the age in years and months, the second column gives the corresponding grade in grades and tenths, as the school year can be considered conveniently as ten months in length. Thus Grade 2.0 means the beginning of Grade 2; Grade 1.2 means two-tenths of the way through Grade 1

TABLE III GATES ORAL READING TEST TABLE FOR TRANSLATING PARAGRAPH ERROR SCORES INTO RAW SCORES—FORMS I AND II

<i>To be used for Paragraphs 1, 2, 3, 4, and 5 only</i>											
No. of errors	0	1	2	3	4	5	6	7-9	10-12	13-16	17-20
Raw score	6	5	4	3	2	1	.8	.6	.5	4	2
											.0
<i>To be used for Paragraphs 6 and 7 only</i>											
No. of errors	0	1	2	3	4	5	6	7	8	9	10
Raw score	6	6	6	5	5	4	4	3	2	1	1
											0

TABLE IV GATES ORAL READING TEST TABLE FOR TRANSLATING TOTAL RAW SCORES INTO AGE AND GRADE SCORES—FORMS I AND II

Age score	6-9	6-11	7-1	7-2	7-4	7-5	7-6	7-7	7-8	7-10	8-0
Raw score	.2	.4	.7	1.0	1.3	1.7	2.0	2.5	3.0	4.0	5.0
Grade score	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
<hr/>											
Age score	8-2	8-3	8-5	8-6	8-6	8-7	8-8	8-8	8-9	8-9	8-10
Raw score	6.0	7.0	8.0	9.0	10.0	11	12	13	14	15	16
Grade score	2.7	2.8	2.9	2.95	3.0	3.1	3.15	3.2	3.25	3.3	3.4
<hr/>											
Age score	9-0	9-2	9-4	9-8	9-11	10-1	10-3	10-4	10-5	10-6	
Raw score	17	18	19	20	21	22	23	24	25	26	
Grade score	3.5	3.6	3.8	4.0	4.2	4.4	4.5	4.6	4.7	4.8	
<hr/>											
Age score	10-10	11-0	11-2	11-5	11-7	11-10	12-1	12-3	12-5		
Raw score	27	28	29	30	31	32	33	34	35		
Grade score	5.0	5.1	5.3	5.6	5.8	6.0	6.3	6.5	6.7		
<hr/>											
Age score	12-9	12-10	13-0	13-1	13-3	13-9	14-3				
Raw score	36	37	38	39	40	41	42				
Grade score	7.0	7.2	7.3	7.4	7.5	8.0	8.5				

TABLE V AVERAGE PERCENTAGES OF FOUR MAIN TYPES OF ERRORS ON GATES ORAL READING TEST—FORMS I AND II

TOTAL ERRORS	OMISSIONS	ADDITIONS	REPETITIONS	MISPRONUNCIATIONS
<hr/>				
60 or more	50	0	0	50
55-59	48	0	0	52
50-54	45	1	2	52
45-49	43	1	2	54
40-44	41	1	3	55
35-39	39	1	3	57
30-34	36	1	3	60
25-29	34	1	3	62
20-24	30	1	4	65
15-19	25	1	5	69
10-14	20	1	7	72
5-9	10	2	10	78

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TABLE VI NORMS FOR CATEGORIES OF MISPRONUNCIATIONS IN THE
GATES ORAL READING TEST—FORMS I AND II

TOTAL NUMBER MISPRO- NOUNCED*	(e) REVERSAL	(f) PARTIAL REVERSAL	(g) TOTAL REVERSAL	(h) WRONG BEGINNING	(i) WRONG MIDDLE	(j) WRONG ENDING	(k) SEVERAL WRONG PARTS
	M L	M L	M L	M L	M L	M L	M L
30	2 5	1 4	3 6	8 11	2 5	8 14	9 12
29	2 5	1 4	3 6	7 10	2 5	8 14	9 12
28	2 5	1 4	3 6	7 9	2 5	8 14	8 11
27	2 5	1 4	3 6	6 8	3 5	9 14	6 10
26	2 5	1 4	3 6	5 7	3 5	9 14	6 9
25	2 4	0 3	2 5	4 6	3 5	10 15	6 9
24	1 4	0 3	1 5	3 5	3 5	11 15	6 9
23	1 4	0 3	1 5	3 5	3 5	10 15	6 8
22	1 4	0 3	1 5	2 4	3 5	10 15	6 8
21	1 4	0 3	1 5	2 3	3 5	10 14	5 7
20	1 4	0 3	1 5	2 3	2 5	10 13	5 7
19	1 4	0 3	1 4	1 3	2 5	10 13	5 7
18	1 4	0 3	1 4	1 3	2 5	9 13	5 7
17	1 4	0 3	1 4	1 3	2 4	9 13	5 7
16	1 4	0 3	1 4	1 2	2 4	8 12	4 6
15	1 4	0 3	1 4	1 2	2 4	8 12	3 6
14	0 3	0 3	0 4	1 2	2 4	8 12	3 5
13	0 3	0 3	0 4	0 2	2 4	8 11	3 5
12	0 3	0 3	0 4	0 2	2 4	7 10	3 5
11	0 3	0 2	0 4	0 2	1 3	7 10	3 5
10	0 3	0 2	0 3	0 2	1 3	6 9	3 5
9	0 3	0 2	0 3	0 2	1 3	6 8	2 5
8	0 3	0 2	0 3	0 2	1 3	5 7	2 4
7	0 2	0 2	0 3	0 2	1 3	5 6	1 4
6	0 2	0 2	0 3	0 2	1 3	4 5	1 3

* If errors exceed 30, use same proportions as given for 30.

TABLE VII SPEED OF READING PARAGRAPHS IN THE GATES ORAL READING TEST—FORMS I AND II

Time in seconds taken to read each paragraph in the "Gates Oral Reading Test" by pupils getting different reading grade scores on this test. The 100 percentile may be rated as very fast, 75 as fast; 50 as average; 25 as slow; and 1 as very slow.

Percentile	READING GRADES					
	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-8.0
<i>Paragraph 1</i>						
100	9	6	5	5	4	4
75	21	8	7	7	7	6
50	25	11	9	8	8	7
25	45	13	11	9	8	8
1	74	32	15	12	11	9
<i>Paragraph 2</i>						
100	20	11	7	6	5	5
75	34	14	10	9	8	7
50	40	15	12	11	10	8
25	58	19	14	13	11	10
1	105	34	19	17	13	12
<i>Paragraph 3</i>						
100	36	14	12	11	10	7
75	59	18	16	14	12	11
50	70	27	18	16	14	13
25	93	37	20	18	16	15
1	145	71	28	25	19	18
<i>Paragraph 4</i>						
100	—	19	16	15	14	13
75	—	30	22	19	18	15
50	—	39	24	21	19	17
25	—	55	29	25	22	21
1	—	87	41	29	24	24

Norms for the Gates Diagnostic Tests

TABLE VII SPEED OF READING PARAGRAPHS IN THE GATES ORAL READING TEST—FORMS I AND II

Time in seconds taken to read each paragraph in the "Gates Oral Reading Test" by pupils getting different grade scores in this test. The 100 percentile may be rated as very fast, 75 as fast; 50 as average, 25 as slow, and 1 as very slow

Percentile	READING GRADES					
	2 0-2 9	3 0-3 9	4 0-4 9	5 0-5 9	6 0-6.9	7 0-8 0
<i>Paragraph 5</i>						
100	—	22	21	19	17	14
75	—	41	28	24	20	18
50	—	51	41	28	22	20
25	—	93	53	34	25	23
1	—	126	91	46	34	30
<i>Paragraph 6</i>						
100	—	—	25	23	21	18
75	—	—	44	34	26	22
50	—	—	50	42	32	25
25	—	—	80	55	37	27
1	—	—	140	82	44	37
<i>Paragraph 7</i>						
100	—	—	—	44	33	28
75	—	—	—	61	43	34
50	—	—	—	73	50	37
25	—	—	—	93	63	50
1	—	—	—	143	83	73

TABLE VIII NORMS FOR GATES ORAL VOCABULARY TEST—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade score	2.0	2.2	2.4	2.5	2.6	2.7	2.8	3.0	3.3	3.8	4.4	4.8	5.0
Raw score	13	14	15	16	17	18	19	20	21	22	23	24	25
Grade score	5.4	5.8	6.0	6.2	6.4	6.6	7.0	7.5	8.0	8.5	9.0	9.5	10.0
Raw score	26	27	28	29	30								
Grade score	10.5	11.0	11.5	12.0	13.0								

TABLE IX NORMS FOR GATES REVERSALS—FORMS I AND II

Number Wrong

Raw score	28	27	26	25	24	23	22	21	20	19	18
Grade score	1.4	1.5	1.7	1.8	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Raw score	17	16	15	14	13	12	11	10	9	8	7
Grade score	2.7	2.75	2.8	2.85	2.9	2.93	2.96	3.0	3.05	3.1	3.15
Raw score	6	5	4	3	2	1					
Grade score	3.2	3.3	3.4	3.5	3.6	3.8					

TABLE X NORMS FOR GATES REVERSALS—FORMS I AND II

Raw Score is the Percentage of Reversals

% Rev. *	22	21	20	19	18	17	16	15	14	13	12	11	10
Grade score	1.5	1.6	1.7	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.3	3.4
% Rev. *	9	8	7	6	5	4	3	2	1				
Grade score	3.45	3.5	3.53	3.57	3.6	3.65	3.7	3.75	3.8				

* The percentage of reversals is the raw score.

TABLE XI NORMS FOR PHRASE PERCEPTION—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade score	1.5	1.5	1.6	1.7	1.9	2.1	2.3	2.5	2.7	2.7	2.8	2.8	2.9
Raw score	13	14	15	16	17	18	19	20	21	22	23	24	25
Grade score	2.9	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	4.0	4.5	6.5

Norms for the Gates Diagnostic Tests

TABLE XII NORMS FOR WORD PERCEPTION—FLASH PRESENTATION—
FORMS I AND II

For 2 columns or a total of 40 words

Raw score	0	1	2	3	4	5	6	7	8	9	10	11
Grade score	1.5	1.55	1.6	1.65	1.7	1.75	1.8	1.9	2.0	2.1	2.2	2.3
Raw score	12	13	14	15	16	17	18	19	20	21	22	23
Grade score	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.25	3.3	3.4	3.5	3.6
Raw score	24	25	26	27	28	29	30	31	32	33	34	35
Grade score	3.7	3.8	3.9	3.95	4.0	4.05	4.1	4.15	4.2	4.6	5.0	5.5
Raw score	36	37	38	39	40							
Grade score	6.0	6.2	6.5	6.8	7.0							

TABLE XIII NORMS FOR WORD PERCEPTION AND ANALYSIS—UNTIMED
PRESENTATION—FORMS I AND II

For 4 columns or a total of 80 words

Raw score	1	2	5	7	8	10	11	12	14	17	19	22	24
Grade score	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Raw score	26	29	31	34	37	40	42	45	49	53	54	56	59
Grade score	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
Raw score	61	62	63	64	65	66	67	68	69	70	70	71	
Grade score	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2
Raw score	72	73	74	74	75	76	77	78	78	79	80		
Grade score	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3		

TABLE XIV NORMS FOR SPELLING TEST—FORMS I AND II

For 2 columns or a total of 40 words—Forms I and II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade score	1.5	1.6	1.7	1.9	2.1	2.2	2.3	2.5	2.7	2.8	2.9	3.0	3.2

Raw score	13	14	15	16	17	18	19	20	21	22	23	24	25
Grade score	3.3	3.4	3.5	3.7	4.0	4.5	4.7	5.0	5.2	5.5	5.7	6.0	6.2

Raw score	26	27	28	29	30	31	32	33	34	35	36	37	38
Grade score	6.5	6.7	7.0	7.2	7.5	7.8	8.0	8.2	8.5	8.7	9.0	9.2	9.5

Raw score	39	40
Grade score	9.7	9.9

TABLE XV NORMS FOR SYLLABICATION—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11
Grade score	1.5	1.7	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.2	3.3	3.4

Raw score	12	13	14	15	16	17	18	19	20
Grade score	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.4	4.6

TABLE XVI NORMS FOR RECOGNITION OF SYLLABLES—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10
Grade score	1.5	1.6	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6

Raw score	11	12	13	14	15	16	17	18	19	20
Grade score	2.8	2.9	3.0	3.1	3.2	3.2	3.3	3.4	3.6	3.8

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TABLE XVII NORMS FOR RECOGNITION OF PHONOGRAMS—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10
Grade score	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4
Raw score	11	12	13	14	15	16	17	18	19	20	
Grade score	2.6	2.8	3.0	3.2	3.3	3.4	3.5	3.6	3.7	3.8	

TABLE XVIII NORMS FOR BLENDING LETTER SOUNDS—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10
Grade score	1.6	1.7	1.8	1.9	2.1	2.2	2.25	2.3	2.4	2.45	2.5
Raw score	11	12	13	14	15	16	17	18	19	20	
Grade score	2.6	2.7	2.9	3.1	3.2	3.4	3.5	3.7	4.1	4.4	

TABLE XIX NORMS FOR GIVING LETTER SOUNDS—FORMS I AND II

Raw score	9	12	14	16	18	20	21	22	23	24	25	26
Grade score	1.5	1.6	1.7	1.8	1.9	2.1	2.3	2.6	2.9	3.2	3.7	4.0

TABLE XX NORMS FOR SPEED OF READING CAPITAL LETTERS—FORMS I AND II

Raw score	70	55	40	35	32	30	28	26	24	22	20	19
Grade score	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Raw score	18	18	17	17	17	17	16	16	16	15	15	15
Grade score	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
Raw score	15	15										
Grade score	3.9	4.0										

TABLE XXI NORMS FOR ERRORS IN READING CAPITAL LETTERS—FORMS I AND II

Raw score	13	5	4	3	2	2	1	1	0	0	0
Grade score	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5

TABLE XXII NORMS FOR SPEED OF READING SMALL LETTERS—FORMS I AND II

Raw score	60	50	38	32	30	28	26	25	24	23	21	20
Grade score	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Raw score	19	19	18	18	18	17	17	17	16	16	16	15
Grade score	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
Raw score	15	15										
Grade score	3.9	4.0										

TABLE XXIII NORMS FOR ERRORS IN READING SMALL LETTERS—FORMS I AND II

Raw score	14	8	5	4	3	2	2	2	1	1	1	0
Grade score	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6
Raw score	0	0	0	0								
Grade score	2.7	2.8	2.9	3.0								

TABLE XXIV NORMS FOR BLENDING LETTER SOUNDS—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11
Grade score	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
Raw score	12	13	14	15	16	17	18	19	20			
Grade score	2.6	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0			

Norms for the Gates Diagnostic Tests

TABLE XXV NORMS FOR GIVING LETTERS FOR SOUNDS—FORMS I AND II

Raw score	3	7	12	14	15	16	17	18	19	20	21	22
Grade score	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4

Raw score	23	24	25	26	27	28	28	29	29	30	31	
Grade score	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	

TABLE XXVI NORMS FOR GIVING WORDS WITH STATED INITIAL SOUNDS
—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade score	1.3	1.4	1.5	1.7	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.0

TABLE XXVII NORMS FOR GIVING WORDS WITH STATED FINAL SOUNDS
—FORMS I AND II

Raw score	0	1	2	3	4	5	6	7	8	9	10	11	12
Grade score	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.3	2.5	2.7	3.0	3.3

Part III. Directions for Giving Certain Supplementary Tests

In this section are given specific directions for conducting tests of some of the abilities discussed in Chap. 4.

Hearing Test. A simple informal test of hearing ability, namely, the Whisper Test of Hearing, may readily be given by any teacher. To give this test the teacher should whisper numbers, such as *twenty-six*, *thirty-four*, *ninety-five*, and so forth, one at a time, and ask the pupil to repeat the number. A series of such numbers should be given at each of several distances until it is possible to determine the maximum at which a large percentage of numbers can be correctly heard. For this test the child should face the teacher with his eyes closed so that he cannot detect numbers by lip-reading. The teacher should move back and forth trying out the criti-

cal distances until she has located the greatest one at which the errors are very infrequent.

The following table will give the teacher an idea of the hearing acuity as attained in a whisper test in a quiet room.

AVERAGE WHISPER, FEET	LOUD WHISPER OR SOFT VOICE, FEET	HEARING LOSS IN SENSATION UNITS	QUALITY OF HEARING
39	225	none	excellent
22	125	5	good
12	70	10	fair
7	40	15	poor
4	22	20	very poor

The table shows that a child who can hear an average whisper in a quiet room at a maximum distance of seven feet is clearly poor in hearing. In noisy classrooms even smaller losses may cause difficulty. In some classrooms the amount of noise from outside and inside is so great as to reduce the hearing of a child by as much as a rather high degree of deafness would in a relatively quiet place. As a consequence, mild degrees of deafness coupled with noise in a classroom may result in inability for pupils with very slight hearing losses to hear what the pupils and the teacher are saying. It is worth repeating that the really hard-of-hearing child is often less likely to indicate the fact that he is not getting what is said than is the normal child to whom failure to hear is the exception and not the rule.

The whisper test does not reveal certain types of partial deafness, that is, deafness for sounds of certain frequencies. A child, for example, may do fairly well on the whisper test and still be relatively hard of hearing for sounds within the range of the teacher's voice. If the pupil does poorly on the whisper test, or if he does reasonably well and the teacher still has suspicions that he has difficulty in hearing her in the classroom, a test with a modern audiometer should be provided if possible. Two of the best-known types of audiometers are the Western Electric Company 6-A and 4-B models. These devices are distributed by the Graybar Electric Company, Graybar Building, New York City. The 6-A audiometer must be used with pupils individually and it gives a far more accurate appraisal of hearing than the 4-B form. The 4-B audiometer can be used in a quiet room to measure the hearing sensitivity of as many as forty pupils at one time. It is

Directions for Giving Certain Supplementary Tests

a very useful instrument for rough appraisal by means of which the pupils probably seriously deficient in hearing can be identified.

Speech Test. In Chap. 4 we discussed several types of speech deficiencies. It is important to distinguish between serious deficiencies in speech and defects that are minor or represent merely slow development. The following speech test was devised by Professor Magdalene E. Kramer, head of the Department of Speech, Teachers College, Columbia University. The speech record blank on page 644 is used in this test.

The child's response to the test items and the teacher's comments may be written on a sheet of paper, or, if the teacher desires, she may mimeograph or hectograph copies of this speech record blank and make her notes on it.

The speech record includes a list of all the main sounds used in typical English speech. It includes twenty-five consonant sounds and fifteen vowel sounds.

The child's ability to articulate these sounds may be tested in either of two ways. The first method is for the teacher to say the word listed beside each sound in a clear but ordinary manner and ask the child to repeat the word. A second method is to form a simple sentence of familiar words containing the test word. The teacher may say this sentence to the child and ask him to repeat it.

If any of the test words are unfamiliar, the teacher may substitute another familiar word containing the same sound. If the test is repeated after an interval, the same words may be used, or other words containing the same sound may be used.

The teacher should make a note on the record, indicating whether the child articulates the sound correctly when pronouncing the word. If there is an error she should indicate its nature.

The test record contains a check list of the other types of speech defects and difficulties which were discussed in Chapter 4. As the pupil reproduces the word or the sentence as suggested above, the teacher should make notes concerning other types of difficulties. Chapter 4 gives brief descriptions of these difficulties and the references given on page 645 give fuller discussions and descriptions of them.

In appraising a child's speech at the beginning of the first grade, the teacher should keep certain considerations in mind. First, the teacher should realize that many children at this stage have not completed their normal speech development and therefore their speech is likely to vary somewhat from adult articulation of common sounds. Experience in giving the test will gradually give the teacher a sense of what is normal and what is unusual in young children. Second, it should be remembered that normal adults in any community vary considerably in the exact pronunciation of many familiar words. That is to say, in judging a child's pronunciation, it is important to distinguish between unusual pronunciation resulting from his successful imitation of adults with whom he has associated and unusual pronunciation due to inability to reproduce the model which he has attempted to imitate. Third, it should be remembered that there are degrees of variation from the typical articulation of any sound

SPEECH RECORD

Name _____ Age _____ School _____

Address _____ Telephone _____ Grade _____

INACCURATE SOUNDS

Consonants

b —bed—
 ch —chair—
 d —dog—
 f —farm—
 g —game—
 h —hat—
 j —jelly—
 k —cake—
 l —lamb—
 m —man—
 n —nest—
 ng —song—
 p —paint—
 r —radio—
 s —soap—
 sh —shoe—
 t —toys—
 th —thing—
 th —they—
 v —vest—
 w —wagon—
 wh —wheel—
 y —yard—
 z —zone—
 zh —measure—

Vowels

a —mail—
 a —cat—
 a —father—
 a —above—
 a —hall—
 e —see—
 c —pet—
 i —pie—
 i —sit—
 o —old—
 o —not—
 oo —food—
 oo —book—
 u —use—
 u —up—

VOICE

Nasal voice _____
 Denasal voice _____
 Monotonous voice _____
 High pitch _____
 Breathy or husky voice _____
 Other voice characteristics _____

SPEECH

Lisping _____
 Lingual protrusion _____
 Lateral emission _____
 Dull, blunt "s" _____
 Nasal "s" _____
 Omission of sounds _____
 Transposition of sounds _____
 Substitution of sounds _____
 Foreign accent _____
 Indistinct speech _____
 Cluttering _____
 Difficult consonant combinations _____

SUGGESTIONS FOR
IMPROVEMENT:

Date _____ Examiner _____

Directions for Giving Certain Supplementary Tests

A high degree of exactitude should not be expected of children at this age. The teacher must depend considerably upon gaining a sense of what is normal and what represents a real defect in the case of children, after proper allowances have been made for their age, the kind of pronunciation with which they have been associated, etc.

For further reading concerning the testing and diagnosis and the theory of corrective work in speech, the following books are recommended: Letitia Raubicheck, *How to Teach Good Speech in the Elementary Schools*, Noble and Noble, New York, 1937; G. Seth and D. Guthrie, *Speech in Childhood*, Oxford University Press, New York, 1935; Ida C. Ward, *Defects of Speech, Their Nature and Cure*, Dent, London, 1931.

Suggestions for tests and for various types of corrective materials will be found in: Rodney Bennett, *The Play Way of Speech Training*, The Expression Company, Boston, 1937; I. M. Case and S. T. Barrows, *Speech Drills for Children in Form of Play*, The Expression Company, Boston, 1929; L. D. Schoolfield, *Better Speech and Better Reading*, The Expression Company, Boston, 1937.

Tests of Handedness. As a result of Haefner's study¹ it is apparent that there is really no such thing as handedness for all acts. Out of a score of acts, children vary from those who do nearly all of them with the right hand to those who do nearly all of them with the left hand. The typical pupil does the majority with the right hand. Handedness is thus a matter of degree.

In connection with the problem of reading, the important thing is to determine which hand was probably preferred, in the earlier years, for such acts as scribbling and writing. While a test of hand preference for writing is often indicated, it does not tell what the preference, if any, may have been in earlier years, since some children are trained to use the right hand when the left was really preferred. At the time of the test, the pupil may be able to write better with the right than the left or even only with the right. It is advisable, therefore, to use such tests as those found by Haefner to give the highest correlation with a group of different tests of hand preference.

The following tests will be found helpful in deciding as to handedness. In connection with these, it is important to see: (a) that the subject has both hands free, (b) that the object is presented so as to be equally convenient to each hand, (c) that not enough time is given for child to inhibit the impulse to use one hand and to switch deliberately to the other, and (d) that several trials are given.

1. *Picking-up Test.* While the child is standing, place a small object (writ-

¹ Haefner, R., *The Educational Significance of Left-Handedness*, Teachers College Contribution to Education, No. 360, Bureau of Publications, Teachers College, Columbia University, 1929.

ing utensils excluded) on the floor directly in front of him and ask him to pick it up. If each hand is used, repeat three times or more, if necessary, to get the relative frequency.

2. *Throwing Test.* Place a soft rubber ball on a table or desk directly before the child and ask him to throw it to you. The examiner may stand ten or fifteen feet away either before the desk or behind it, so that the child must turn around before throwing. Repeat three or more times.
3. *Receiving Test.* Stand about three feet in front of the child and, holding the ball in the hand, move it forward fairly rapidly directly toward the center of his body just above the waist line after having asked the child to take the object when it is presented. Repeat three or more times.
4. *Other Tests of Similar Purpose.* Other tests of similar purpose are sufficiently indicated by titles.¹

Using a spoon to dip beans from a dish.

Using scissors to cut a piece of paper.

Using cloth to dust a desk.

Hammering nails.

Catching a ball.

Shooting a marble.

5. *Writing Test.* Place the paper squarely in front of the pupil on the desk or table at convenient writing distance. Place the pencil on the mid-line of the paper with the point away from the pupil. Then ask him to write his name and address.

If the pupil writes with the left hand and does more than half of the other acts with it, he should be classified, in the popular sense, as left-handed. If he writes with the right hand while doing half or more of the other acts with the left and reports having written at some previous time with the left, he should be classed as left-handed. If he writes with the right hand, and has no knowledge of having otherwise written, the probability of a left-hand tendency may be ascertained by a statistical summary, with a percentage, of the acts in which the left hand was used exclusively or more frequently than the right in such tests as were given.

6. *Durost's Tests.* A comprehensive and informing study of methods of determining handedness has been made by Durost.² He has devel-

¹ Fuller descriptions of twenty-four tests of this type are given in C. A. Selzer, *Lateral Dominance and Visual Fusion*, Harvard Monographs in Education, No. 12, Harvard University Press, Cambridge, Mass., 1903.

² Durost, W. N., "The Development of a Battery of Objective Group Tests of Manual Laterality, with the Results of Their Application to 1300 Children," *Genetic Psychology Monographs*, October, 1934.

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oped a number of tests of handedness, and a questionnaire which may be utilized in securing a preliminary appraisal of a group of pupils. Durost's series of tests include striking at the center of targets with a pencil, piercing holes in very small circles with a push-in, and tracing pathways between lines in a "treasure test" which involves mainly straight lines and circular lines in the "escape test." Certain special materials are required for Durost's tests. Durost's questionnaire is reproduced herewith.

L-E-R CRITERION QUESTIONNAIRE

We want to find out which hand you usually or habitually use to do certain everyday things which we all do. In answering each question, put a circle around one of the letters to tell us which hand you most always use. R stands for Right Hand. E stands for Either Hand. L stands for Left Hand. For example, suppose the question is.

With which hand do you write? L E R

If I were answering that question I would put a circle around R — like this:

With which hand do you write? L E **(R)**

If I could write just as well with one hand as with the other, I would put a circle around E which stands for *Either Hand* — like this

With which hand do you write? L **(E)** R

If I wrote with my left hand, I would put a circle around L like this:

With which hand do you write? **(L)** E R

Answer each of the questions by putting a circle around *one* and only *one* of the letters. If you are not sure, make a guess.

1. With which hand do you hold a jack-knife or paring knife? L E R
2. With which hand do you write? L E R
3. With which hand do you throw a ball? L E R
4. With which hand do you erase the blackboard? L E R
5. With which hand do you shoot marbles? L E R
6. With which hand do you usually brush your teeth? L E R
7. With which hand do you draw or paint? L E R
8. With which hand can you reach higher? L E R
9. With which hand do you usually hold a glass or cup, when drinking? L E R
10. Which hand do you think is stronger? L E R

The questionnaire gives a high correlation with a composite score which came from the several specific tests.

Tests of Eye Dominance. In the studies of eye dominance in relation to reading, the tests have been determinations of eye dominance in "sighting" a stationary object. The following are the tests frequently used.

1. *Finger Sighting.* Ask the child to hold his index finger about a foot in front of his eyes and then move the finger *with both eyes open* until it is directly in line with some small object ten to fifteen feet away. Ask the child to close the right eye. If the finger and object are still in line, the child is said to be left-eyed. If they are not, he is said to be right-eyed. Repeat, asking child to close left eye. If the finger and object are not in line, the child is left-eyed; if they are, he is right-eyed. Repeat if tests do not agree. If the pupil cannot line up the finger and object with both eyes open, it is customary to call him "ambieyed."

Other methods of checking results may be used with children who have difficulty in closing one eye, or who tend to move when they try to do so, or who cannot tell whether the finger and object are in line when one eye is closed or who cannot sight with both eyes open.

One method consists in having the child line up the finger and object as before and then, keeping the two in line with both eyes open, to move the finger toward the nose. The right-eyed child is expected to move the finger toward the right eye; the left-eyed toward the left, and the ambieyed directly toward the nose.

Another method consists in having the child line up his finger and the examiner's open eye, the other being closed. For this test, the examiner should be ten feet or less away. When the child has the finger and eye lined up, the examiner notes which of the pupil's eyes he is looking into. It is the dominant eye. If it is the mid-point or nose, the child, providing he can "aim" is supposed to be ambieyed.

2. *Parson's Manoptoscope or Manuscope Test.* Parson's Manoptoscope or Manuscope Test was given these two names on the assumption, now discredited, that it determined hand dominance. The theory of the test is described in Parson's book, *Lefthandedness*.¹ The apparatus² is a simple stereoscopelike metal cone or funnel which fits over the eyes and terminates in a round, narrow opening. The child places the funnel over the eyes and looks through the opening at a point indicated on a card. A quick shift of the card, which slides in a slit, exposes two letters or

¹ Parson, B. S., *Lefthandedness*, The Macmillan Company, New York, 1924.

² Distributed by the C. H. Stoelting Co., Chicago.

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words or colors or pictures.¹ The child then tells what he sees. If either eye is dominant, he will see only one object. An explanation accompanying the test apparatus tells how to determine which eye is used.

In principle this test is essentially the same as the sighting test. The pupil really lines up the opening (instead of a finger) with the object. Since there is some evidence that hand dominance affects the results of this test, which requires the pupil to hold the apparatus, it is probably better to fix on the instrument an elastic band which, when put around the head, will support it without use of the hand.

3. *The Scheideman Test*. Scheideman has developed a test of eyedness consisting of a page of directions which may be pasted on cardboard. These directions are reproduced on page 650. The circle in the circle is to be cut out. To give this test the card is held before the face with both hands, with the hole in the card equally distant from the two points.²

4. *Eye Dominance and Superior Acuity*. Eye "dominance" as determined by these tests should not be confused with superiority in acuity or general efficiency of one eye as compared to the other. In a recent study, as yet unpublished, made by the writer and Dr. G. L. Bond, of sixty-four cases of reading disabilities in one group and of a second group of sixty-four cases of equivalent intelligence, age, and amount of schooling but of normal reading attainment, it was found that combining the figures for the two groups—which were essentially the same—of the fifty-nine pupils who revealed right-eye dominance, nine showed superior visual acuity in the right eye, six in the left eye, and forty-four the same in both eyes in tests of near vision; in tests of far vision, twelve showed a right-eye superiority, fourteen a left eye, and thirty-three equal acuity in the two eyes. Of the fifty-four pupils who showed left-eye dominance, four were superior in the right eye in near vision, eleven in the left eye, and thirty-nine were the same in both eyes; in far vision, three were better in the right, fifteen in the left, and thirty-six were equal. Of fifteen cases who were ambiguous as regards eye dominance, two were more acute in right-eye near vision, two in left, and eleven were equal; in far vision, six had more acute vision in the right, none had more acute vision in the left, and nine showed equal acuity in the two eyes. In these data it may be seen that determining eye dominance gives no

¹ Different materials are provided to suit different cases. For young pupils the colors or simple pictures are preferable.

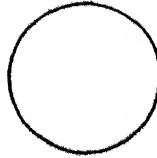
² This test is described in *The Psychology of Exceptional Children*, by Norma A. Scheideman, Houghton Mifflin Company, Boston, 1931, p. 174.

Test for Eyedness

Directions

1. Place a small object (bit of crumpled paper or a bright button) upon the floor or table.
2. Hold this card steady at about fifteen or twenty inches from your face.
3. With both eyes open, look at the small object through the hole in this card.
4. Without moving this card, close the right eye. Can you still see the small object? If you cannot, you are right-eyed.
5. Without moving this card, open the right eye and close the left eye. Can you still see the small object? If you cannot, you are left-eyed.

cut here



When testing small children, cover the eyes alternately for them.

For distance sighting determine some small object, as the tip of the flagpole, or a tree on a horizon.

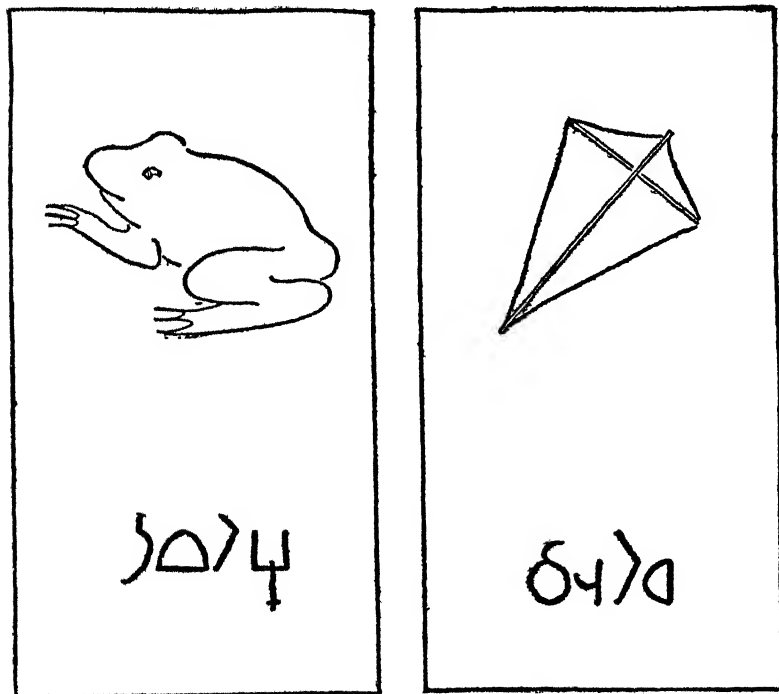
For a child reticent in speaking, permit the card to be shifted to accommodate each eye individually. If the child shifts the card to the left when using his left eye, he is right-eyed. If he shifts the card to the right when using the right eye only, he is left-eyed.

assurance concerning the nature of visual acuity, and that even determination of visual acuity for near vision gives results which differ in certain cases from tests of far vision. Analysis of the cases summarized above shows no very definite relationship, furthermore, between the relative

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acuity in the two eyes and specific types of reading difficulties or general disability. In other words, the proportions having superior acuity in the right eye were about the same among the good as among the poor readers, and the same is true of superiority in the left eye or equality in the two eyes. Further analysis showed, moreover, that there was little or no relationship between superiority in one eye and special types of reading difficulties. For example, there was no obviously greater tendency of pupils with a greater acuity in the left eye to make reversal errors, whereas pupils with left-eye dominance make more reversals than those with right-eye dominance.

The Gates Associative Learning Test. As pointed out in Chap. 3, defects of "visual memory" or "auditory memory," "inability to associate auditory and visual" or "visual and visual symbols" or, more vaguely, damage to the visual or auditory word centers, and "congenital word



Two cards (reduced in size) from the series of 10 comprising one of the form tests in the *Gates Associative Learning Tests*.

blindness," "congenital alexia," and so forth, have been frequently alleged to be causes of inability to learn to read. For most of these abilities or capacities, whether real or alleged, there are no satisfactory objective tests.

The Gates Associative Learning Test was developed in 1925 for the purpose of testing the pupil's ability to learn materials in substantially the manner and similar in form to materials learned in the initial stages of reading. In these tests the pupil is given a visual stimulus one of which, although not made up of English letters, is composed of letterlike characters and when combined in series resembles visually a fairly typical word.

Two tests are based upon these wordlike figures. Two other tests are based on simpler geometrical designs. Thus by comparison of achievement in the two tests one can see the extent to which the character of the visual stimulus affects the learning. In two of the tests, moreover, the pupil observes the visual stimulus and is shown a picture of a simple object which the visual stimulus "means." The test therefore resembles the classroom situation in which the teacher presents a printed word and shows a picture of a dog or a cat or some other object which conveys the word's meaning. As in the actual classroom situation, in this test the pupil attempts to learn to recognize the visual stimulus and to think of the object which it means. In the other test similar visual stimuli are used but the meaning of the symbols is given orally. The teacher pronounces the word which the stimulus is to mean or with which it is to be associated. Thus both the material and the form of these tests are designed to duplicate an actual experience in learning to recognize and think of the meaning of words.

Two cards from one of the set of ten are reproduced on page 651.¹

¹ The four sets of cards, which may be used repeatedly, a Manual of Directions, and tables of norms, may be secured from Arthur I. Gates, Teachers College, 525 West 120th Street, New York 27, New York.

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